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THE FAR EASTERN REVIEW

COMMERCE ◈ ENGINEERING ◈ FINANCE

VOL. IV. MANILA, P. I., SHANGHAI, AND YOKOHAMA, JUNE, 1907. No. 1.

THE GEOLOGY AND MINERAL RESOURCES OF THE PHILIPPINE ISLANDS

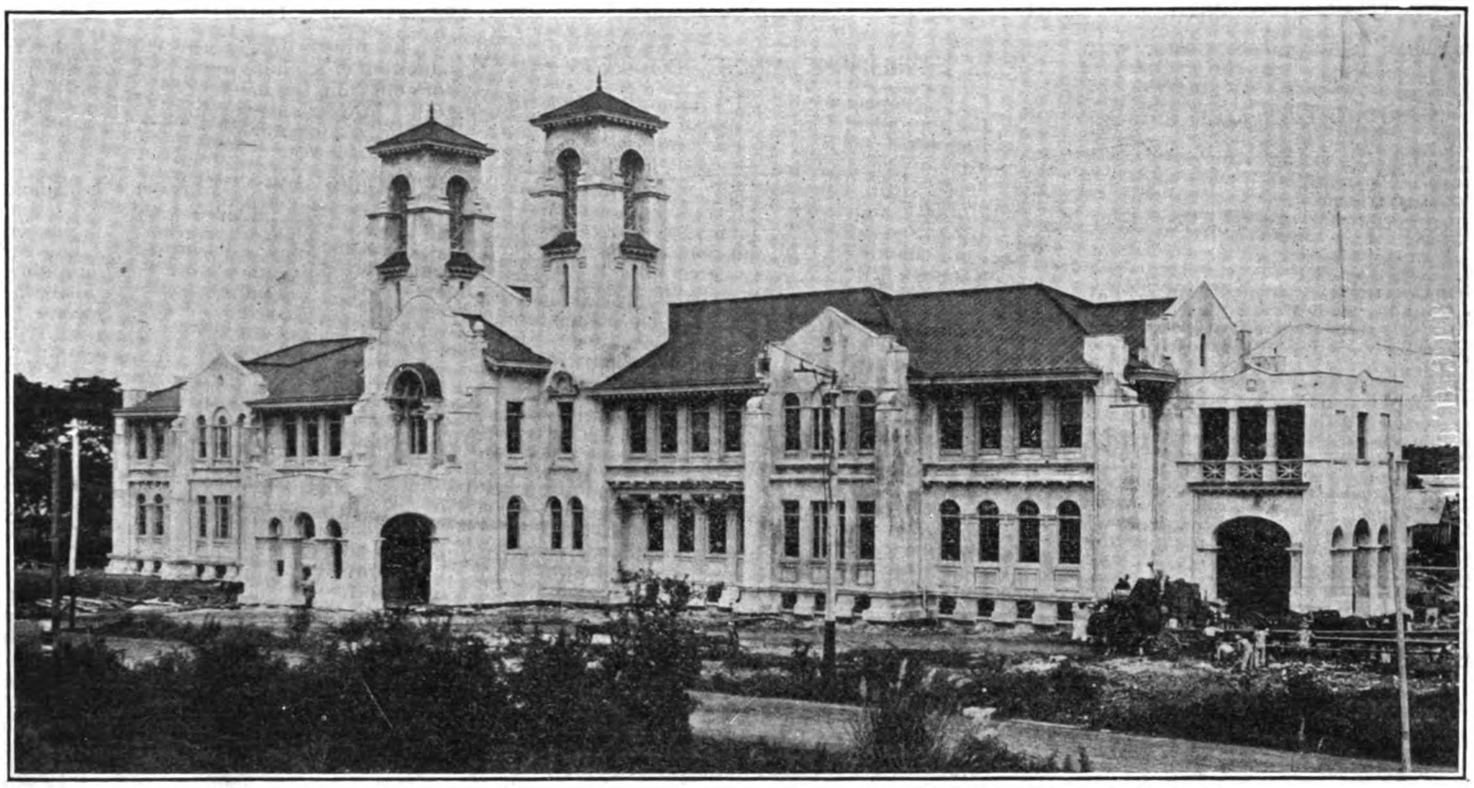
By WARREN D. SMITH, Actg. Chief, Division of Mines; MAURICE GOODMAN, Mining Engineer.

Advance Notes from the Annual Bulletin issued by the Division of Mines at the end of the calendar year.

THE ROLE OF THE MINERAL INDUSTRY IN THE DEVELOPMENT OF THE PHILIPPINES.

INTRODUCTION:

In the history of any country its wealth has depended upon three factors; first, its agriculture; second, its minerals; and third, its transportation facilities. The first is more immediately connected with our existence, the second makes possible the greater development and distribution of the first and the third is vital to both. If we look at the history of the great state of California we see two great epochs clearly defined. Long before her rich valleys and fertile hillsides yielded up their wheat and honey and fruit her streams were being panned for the precious metal and her mountain sides tunnelled. After the first great wave of prospectors and miners beating against the Sierras, wrenching away vast quantities of riches, had subsided those who had but a short time before been absorbed in the pursuit of the yellow metal went quietly to work on the plains of the great Sacramento valley to engage in the quieter pursuits of agriculture California has done great things in agriculture and without a doubt what she has accomplished is due in great measure to the fact that she had capital to start with; and so it will be in the Philippines. The great difficulty in these Islands today is the lack of capital, and we dare say that had we a healthy and vigorous mining industry here turning out the various metals which can be turned into money, our agricultural problem would be a fairly simple one. If we stop to think of the ₱2,000,000.00 which leave these Islands every year to buy coal in a foreign land we see right away that this means practically that much loss, that much capital which is deprived of its ability to work (for us at least) towards producing more capital. In the working of the mineral industry of any country there are five parties or groups of parties engaged, namely: the prospector, the government, the private engineer, the promoter, and the capitalist, and all are absolutely necessary to the proper solution of its problems. We shall take these up in the order named, considering first the work of the prospector, for it is he who blazes the trail; he is the explorer, and as Kipling says, for him there is always "something lost behind the ranges."



THE PHILIPPINE BUREAU OF SCIENCE, THE HOME OF THE DIVISION OF MINES

THE PROSPECTOR

If anything of value is found the prospector is generally the one to find it, but in the history of mining he has rarely reaped the full reward of his labors. You have but to follow the subsequent history of the men who located the first claims on the great property of the Comstock Lode to see how much the world is indebted to these men, and how little of the great stakes they really drew. If the average man in his city office could go out into the wilds of the *bosque* and see some of these men in their tattered rags, with their handful of food, sometimes suffering from fever, deluged with rain, or risking their lives among half savage people on swollen rivers, and typhoon swept seas, he would have a greater respect for the pioneer who uncovers the wealth stored away in the rocks. Would it not be a saving investment if the government could subsidize a few of these well chosen men and make it possible for them to do more efficient work? In the Philippines we are absolutely dependent upon them, for the reason that the vast body of the native people know nothing of minerals and ores and until they can be educated along these lines we must depend upon that small but hardy band of Americans, and also some Europeans, who have chosen to leave the beaten track and search beyond the pale of cities and towns.

(Continued on page 4.)

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FOURTH VOLUME OF REVIEW

The June issue of the FAR EASTERN REVIEW is the initial number of the fourth volume. The success attained by the magazine as a representative journal of the FAR EAST devoted to the advancement of the commercial interests of eastern Asia is measured by the generous endorsement it has received at the hands of the captains of industry and the Press of the Orient. Every effort has been made to serve a large and growing clientèle so that no progressive section from India to Vladivostock has suffered from neglect. With increased facilities, the fourth volume of the REVIEW promises to eclipse all former ones in point of interest and value to all who are interested in the development of the East.

In this issue, the REVIEW devotes the greater portion of its space to the mineral wealth of the Philippine Islands. The subject is an exhaustive one. Heretofore little of a definite character was known as to the industry in the archipelago. An effort has been made to gather from every available source the most reliable data and for the first time it might be said that a complete and conservative review of the development of the mining industry of the Philippines is made available.

In connection with this departure the management proposes to take up in similar editions from time to time, the important industries of every section of the Orient. Never in the history of eastern Asia has the immediate prospect seemed brighter and the years 1907-1908 will surely be marked by great strides along the highway of progress, and it is the purpose of the REVIEW to keep well to the van in the onward march.

PHILIPPINE MINING PROSPECTS

Some one has defined a mine as a hole in the ground and the owner of the hole a distinguished member of the order of Ananias. The inference is that the owner of a mineral deposit will not cast any reflections on his property and is very prone to indulge in exaggeration when the merits of that same is being discussed. In this edition of the FAR EASTERN REVIEW every effort has been made to secure only the most reliable data without the slightest deference to the wishes of exploiters of the mineral wealth of the islands so that it may be said that no more desirable publication dealing with the subject has ever been given the public.

A review of the situation at the present time indicates that in at least one district gold has been taken out in paying quantities, giving most satisfactory returns for the capital invested. The development in this district has been slow but sure and every step taken carefully considered. For instance the Benguet Consolidated mines are increasing their output and under such favorable conditions that the shareholders of the company are satisfied that no outside capital is needed. Under similar conditions property in the immediate vicinity of the Consolidated is being developed with local capital. While there has been insufficient time to expect returns, all signs shall fail if the Bua company does not meet with equal success. It must be remembered that there is no bonanza in Benguet and those interested have proceeded with their work in fear and trembling until they were satisfied after years of effort that there was ore in sufficient quantities to warrant the installation of a plant. Their conservatism has been substantially rewarded, and it is worthy of remark that in all the successful development in Benguet province only local capital is interested. In view of the stringency of the money market in the Philippines this may be taken as an indication of the confidence of local capitalists in the development of the mineral industry.

In Masbate where indications are most favorable, the gold deposits have not been so successfully developed as in Benguet. This is due to lack of capital in some instances and poor business management in others. True the district is young and has not as yet been given sufficient time to uncover the hidden wealth. In justice to the enterprising miners who have invested their all and devoted several years of their lives to research and development work it is too early to render a verdict. Sufficient evidences of rich deposits have been found to warrant the expenditure of sufficient money to investigate the extent and quantity of ore available. Unfortunately the scarcity of local capital has been the greatest drawback to the proper development of the different properties. The older district of Benguet had the advantage of attracting the limited amount available and Masbate was forced to look elsewhere, and we are given to understand that one of these companies has met with success in New York. With sufficient capital and wise direction there is every indication that Masbate will prove one of the most important gold mining centers in the Philippines.

The development of the deposits of coal throughout the islands is interesting American capital, but the work has not yet progressed to a stage where any verdict may be rendered. The work is being watched with interest and experiments are being made with a view to utilizing the coal by the use of gas producing engines.

From a careful review of the different mineral deposits sufficient evidence of their commercial value appears to have been secured to warrant the expenditure of sufficient capital to complete investigations in the different zones. Philippine capital alone cannot undertake this task at this time, and it is our opinion that foreign or American capital could not be expended in any mining region with better prospect of favorable returns.

FRONTISPIECE

The illustration on the cover is the reproduction of a photograph of a forty-ounce bar of gold from the Benguet Consolidated Mining Co.'s property at Antimok.

PROPOSED AMENDMENTS TO PHILIPPINE MINING LAW

The following bill providing for several important amendments to the Philippine bill in regard to the mining laws provided thereby was introduced in the senate by Senator Lodge during the last session of congress. It was read twice and referred to the committee on the Philippines who failed to report it back to the house. Friends of the bill expect favorable consideration next session.

Section 33 of the Philippine Bill is proposed repealed by this bill and this is its most popular section. The original section as it now stands is the most serious obstacle in the way of the development of the mineral resources of the islands and reads:

"Section 33.—That no holder shall be entitled to hold in his, its, or their own name or in the name of any other person, corporation, or association more than one mineral claim on the same vein or lode."

Section 36 of the Philippines Bill was proposed amended to read:

"SEC. 36. That the United States Philippine Commission, or its successors, may make regulations, not in conflict with the provisions of this Act, governing the number of mining claims that any person, corporation, or association may locate on the same vein or lode, the location, manner of recording, and amount of work necessary to hold possession of a mining claim, subject to the following requirements:

"On each claim located after the passage of this Act, and until a patent has been issued therefor, not less than two hundred pesos' worth of labor shall be performed or improvements made during each year: *Provided,* That where a group of two or more contiguous lode or placer mining claims are held by any individual, corporation, or association the total value of the improvements or labor required upon such group may be made or performed upon any one of the group: *Provided further,* That any two claims in such a group have one boundary line in common, and that upon a failure to comply with these

COMMERCIAL ASPECTS OF MINING IN THE PHILIPPINE ISLANDS

By The Hon. W. CAMERON FORBES, Secretary of Commerce and Police.

There is little doubt that the mining industry of the Philippine Islands is destined to become a very important feature of their commercial development. At the present time the most tentative beginnings only have been made, and there is not an instance on record where the industry has been developed to a point where it can be dignified by classification among the important industries of the Philippines Islands. The indications are, however, that such beginnings as have been made will lead to important further development.

The gold mines of Benguet Province have begun to yield profits to the owners. All the other miners are patiently putting their money into the ground, making additional developments and prospects, and the results are reported to be such that the realization period, when the gold will begin to come out in comparatively large quantities, is apparently not far away. This should tend toward a very rapid development of Benguet Province.

The Masbate gold propositions are still in the development stage, but the owners of the properties there are confident that they also have something that will turn out very profitable.

In Lepanto-Bontoc the Igorots have, for many generations, been extracting copper from the ground, and the indications are that copper mines there should be profitable if worked on a large scale.

Gold and copper, however, are not the only minerals found in the Archipelago. There are other classes of mines which are just as profitable and as important: manganese has been found in one province; there are indications of oil in several sections; and the coal industry is one, the need of the development of which is paramount in the Philippine Islands.

There are coal veins of importance to be found in many of the Islands; notably in Cebu, where a company is busily at work at the present time developing. The reports of operations on this property indicate that satisfactory progress is being made. The military authorities are developing coal mines on Batan Island in the Province of Albay; and coal has been found on Polillo Island. There is also coal on Luzon Island proper, and various other parts of the Archipelago,

I do not attach as much importance to the necessity of coal for manufacturing purposes as I do to its importance to commerce from the view-point of shipping. I believe that water power can be developed in sufficient quantities, and within reasonable limits of expense, to care for the manufacturing necessities of the Islands and possibly for the land transportation. The Agno river of the Island of Luzon, the Agus river of the Island of Mindanao, and several others of which perhaps surveys have not yet been made, are capable of supplying ample power for all the needs of the country within the radius of their sites for a great many years to come. Not one, however, of these water powers has been developed, and the manufacturing business of the Islands is now being carried on by means of coal from Australia and Japan, and the ships plying in and about the Philippine Islands do so from motive power induced by foreign coal.

It is difficult to make the harbor of Manila an attractive one for sea-going vessels to visit. The seaport of Hongkong so near, where labor is so cheap, is our greatest handicap. To be sure we now have the harbor protected. In a short time we will have wharves built so that ships will be saved the expense and delay incident to lightering; but we have no satisfactory ship-building and repairing plant. Our laws are such, particularly in respect to tariff on imports, that sea-going vessels find it more advantageous to have their repair work done in Hongkong. It is difficult to say wherein the port of Manila could be made in any one point more desirable for the calling of vessels—compared with neighboring ports such as Shanghai, Hongkong and Singapore—than in the one item of coal.

If coal can be found here in large quantities and of suitable quality, and if it can be delivered in Manila at a lower price for the same unit of efficiency than it can be obtained at any of the other ports, we will have a thing which has been lacking in the past: one definite point wherein we can say to the shipping world, "In this we excel any of our neighbors."

To accomplish this it will be necessary to mine coal on a large scale and by improved methods, and to have improved transportatation facilities and handling devices for putting coal aboard ship.

There would, of course, be the natural advantage that all the money now spent by the United States Army, by the Civil Government, by the merchant marine, and by the manufacturing plants in the Philippine Islands for coal for use in the shipping and manufacturing business would be expended in the Philippine Islands and not sent to develop the resources of Japan and Australia. The early commercial development of at least one of the big coal mines of this region is, therefore, of the greatest urgency, and it should be the duty of all of us in the Philippine Islands to endeavor to interest the necessary capital to accomplish such a result.

The Director of Navigation has recently been instructed by the Secretary of Commerce and Police, with the approval of the Governor-General, to so arrange the grates on some of his vessels as to give tests of Philippine coal, and ascertain the actual cash results therefrom, whenever and wherever it can be obtained.

The development of the mining industry, besides its advantage in increasing the trade of the merchants, both those who import mining machinery and tools and the purveyors for general use, gives a large advantage which no other industry presents, in that the romance attached to mining attracts a large population which would not otherwise be brought to the Philippine Islands. A movement such as came to California, to Alaska, to Colorado and other parts of the United States, would bring in a

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conditions the claim or mine upon which such failure occurred shall be open to relocation in the same manner as if no location of the same had ever been made: *And provided further*, That the original locators, their heirs, assigns, or legal representatives, have not resumed work upon the claim after failure and before such relocation. Upon the failure of any one of several coowners to contribute his proportion of the expenditures required thereby, the coowners who have performed the labor or made the improvements may, at the expiration of the year, give such delinquent coowners personal notice in writing or notice by publication in the newspaper published nearest the claim and in two newspapers published at Manila, one in the English language and the other in the Spanish language, to be designated by the chief of the Philippine insular bureau of public lands, for at least once a week for ninety days; and if at the expiration of ninety days after such notice in writing or by publication such delinquent shall fail or refuse to contribute his proportion of the expenditure required by this section, his interest in the claim shall become the property of his coowners who have made the required expenditures. The period within which the work required to be done annually on all unpatented mineral claims shall commence on the first day of January succeeding the date of location of such claim."

Section 56 is also amended to read as follows:

"SEC. 56. That the three preceding sections shall be held to authorize the holding of only one entry by the same person or association of persons, or by any association of persons, any member of which shall have taken the benefit of such sections either as an individual or as a member of any other association, and that persons claiming under section fifty-four shall be required to prove their respective rights and pay for the land filed upon within three years from the time prescribed for filing their respective claims, and upon failure to file the proper notice or to pay for the land within the required period the same shall be subject to entry by any other qualified applicant; and any person or association shall, after entering upon any quantity of vacant coal land as prescribed in the three preceding sections and before obtaining a patent for same, have the right to mine and sell coal therefrom: *Provided*, That upon the coal extracted before obtaining a patent a royalty of thirty centavos per ton shall be paid to the government of the Philippine Islands in such manner as may be directed by the governor-general thereof: *And provided*, That if a patent for said land is not secured within one year after the time prescribed for filing claims to said land a tax thereon of five pesos per hectare shall be paid into the Philippine treasury each succeeding year until a patent be secured: *Provided*, That in lieu thereof, that on each claim located after the passage of this Act, labor may be performed or improvements made equal in value to said tax, evidenced in such manner as may be prescribed by the Philippine Commission; and in the event of failure to comply with these conditions, that part of section thirty-six of this Act which is applicable upon the failure to comply with the conditions for holding a mining claim shall apply thereto, except that the period within which the work shall be required to be done annually on all unpatented coal claims shall commence one year from the date of location of such claim."

SEC. 4. That section seventy-five of the Act of Congress approved July first, nineteen hundred and two, entitled "An Act temporarily to provide for the administration of the affairs of civil government in the Philippine Islands, and for other purposes," is hereby amended by amending the second clause of said section so that the said section, as amended, shall read as follows:

"SEC. 75. That no corporation shall be authorized to conduct the business of buying and selling real estate or be permitted to hold or own real estate except such as may be reasonably necessary to enable it to carry out the purposes for which it is created, and every corporation authorized to engage in agriculture shall, by its charter, be restricted to the ownership and control of not to exceed one thousand and twenty-four hectares of land. And it shall be unlawful for any member of a corporation engaged in agriculture and for any corporation organized for any purpose except irrigation to be in any wise interested in any other corporation engaged in agriculture. Corporations, however, may loan funds upon real-estate security and purchase real estate when necessary for the collection of loans, but they shall dispose of real estate so obtained within five years after receiving the title. Corporations not organized in the Philippine Islands and doing business therein shall be bound by the provisions of this section so far as they are applicable."

SEC. 5. That, subject only to such limitations and regulations as may be provided for by the Philippine Commission or their successors to exempt navigation from artificial obstructions or to protect prior vested rights, all navigable waters and all shoal waters between low and mean high tide on shores, bays, and inlets of the Philippine Islands shall be subject to exploration and mining for gold and other precious metals by citizens of the United States or persons who have legally declared their intention to become such or of the Philippine Islands: *Provided*, That such exploration and mining shall be by virtue of licenses granted by the governor-general of said islands: *And provided further*, That no exclusive licenses for this purpose shall be granted except as to limited and prescribed areas under general regulations established by the Philippine Commission.

set of industrious, hardy, and progressive men who would form a unique society and aid in the development of land in parts which up to the time of their entrance had been almost inaccessible.

Not the least of the benefits derived from the development of mines is the development of transportation. One is reminded of the parable of the man who told his sons that gold had been hidden in a certain field, and that if they would dig sufficiently into that field they would discover it. The sons forthwith took their hoes and shovels and dug the field across from end to end and from side to side; but though they found no gold therein their crops increased four -fold and the gold came as the result. Thus, a road into the mining region, while it might not bring out metal, would probably bring out many times its value in wood, agricultural products, and other things.

In this way the developmeut of the successful mine will mean the development of the successful railroad, which will infuse life into the region it penetrates as the heart pumps blood through the arteries, giving life and health to man.

THE GEOLOGY AND MINERAL RESOURCES OF THE PHILIPPINE ISLANDS

(Continued from page 1.)

THE GOVERNMENT

Second is the work of the government. Nearly every country of any standing among civilized nations maintains a corps of men whose business it is to be versed in the lore of geology and mining. These men are trained to act as guides, to keep a watchful eye on the prospector, to help make his path smoother, and to bring what he has found to the knowledge of the outside world. In many countries this corps of geologists and engineers is busy in making reports on mines already established and on a paying basis. But this, it seems, is rather a waste than a gain. The government in its work should anticipate rather than follow behind; it should make surveys over the public domain, mapping and defining the various formations, pointing out the probable localities and horizons of mineral richness, in short, doing a class of work that the prospector cannot do because of lack of training and for which the private engineer has not time. The private engineer's work lies in a restricted field, and he can cover this much more efficiently than the government engineer, whose work is of a broader nature. In the early stages of the work the government should carry on work of a reconnaisance nature and as time goes on this work may be brought down to greater and greater detail. Another way in which the government might materially aid in promoting the mineral industry is that of offering bounties and various other inducements for the discovery of valuable deposits. It might even grant pensions under certain conditions to men who have become worn-out in their struggle with Nature. The commonwealth of Australia is very far advanced in these matters and through her judiciously distributed bounties has done much for the benefit of all concerned.

We shall not take up much space here in a discussion of the mining laws, as they will be treated elsewhere and under a separate head in this paper. Naturally, in its mining regulations the government finds its most potent instrument for good or harm. Sometimes an overzealous government, in its efforts to prevent graft and monopoly, can so fetter legitimate persons and enterprises as to strangle the whole industry. This can be carried to such extremes as to become a grave economic mistake. It were far better to err on the side of leniency than stringency. The vital thing is to get something started and afterwards put on the check rein.

At last there appears a light on the horizon in the shape of a bill introduced in the senate of the United States providing for some vital changes, the passage of which we hope for at the next session of congress, and which will mean a new and more auspicious era.

THE PRIVATE ENGINEER

Third, having found the ore, it is the work of the private engineer to convince capitalists that it is worth while, and having convinced the capitalists, it is his business to extract the ore; and with his field of work so defined he naturally resents it if the government engineer comes in and makes a report on property to which he naturally has a right. The private engineer and the government engineer can supplement each other's labors very harmoniously and very profitably to both. The former while engaged in the exploitation of the property under his charge can find out many facts which if properly recorded can be, or will be, of great utility to the geologist in his field; and the government engineer can aid the other by furnishing him with the broader facts which help to elucidate the conditions in a smaller and limited district.

THE PROMOTER

Fourth, we come to the promoter. In this latter day we all naturally shy away from the mining promoter and oftentimes with good cause, but the mining promoter is a very necessary person. Someone must do the advertising, and with a proper inspection of mine prospect-uses the many fake schemes could be eliminated without our losing that valuable functionary, the booster.

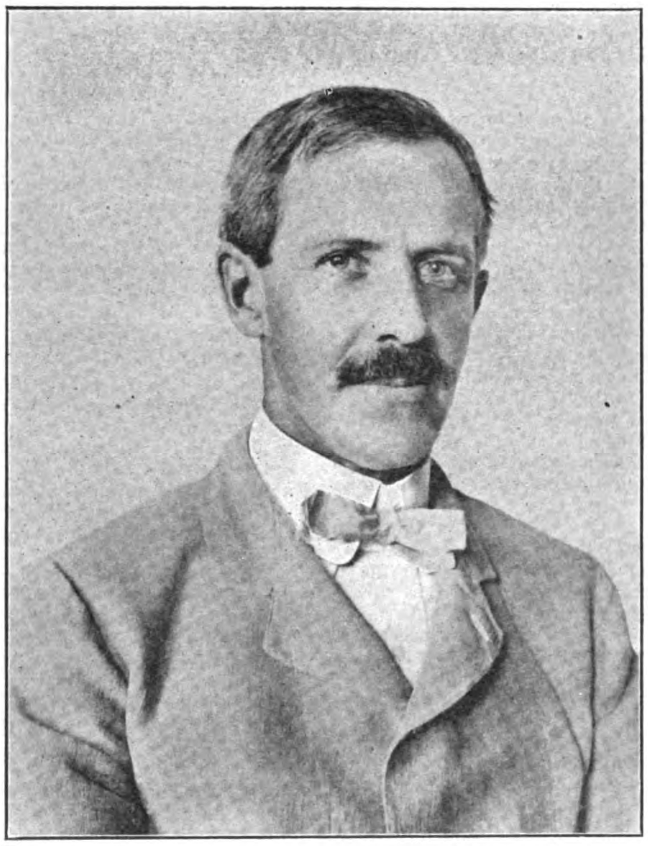
THE CAPITALIST

And last we come to the capitalist; he is the man with the means to accomplish things. Many people are accustomed to "take a fling" at the capitalist just because he is a capitalist and has more money than they and we sometimes think that the capitalist is a much abused person. It is his money (we presume it to be his) that is going to take the risk and naturally he has a right to know the truth and the whole truth about the property or scheme that he is asked to confide in. Today we have rigid examinations for admission to the bar; we have long and severe courses through which a man must go before he has a right to practice medicine on his fellow men; and yet we do not require an examination for admission to the bar of men in the mining profession, men who often bleed their brethren more deeply that the leeches of old time. If the government would require an examination or a certificate from a reputable mining school of every man who sets up to be a mining engineer it would prevent hundreds of people losing their savings, and greater trust and greater confidence would be instilled into the mining industry. Think what a deplorable state of mind exists among many people when a well-known lawyer, a man of profound wisdom and education, makes the remark in all faith that all mining is nothing but a fake and swindle, that more money goes into the ground than ever comes out. What must a man of just ordinary intelligence, a man who knows nothing of mines and minerals and little of business think in regard to the mineral industry? Is it any wonder that people either bury their dollars under the house, thereby removing capital, however small it may be, from its position to earn, or rush blindly into any scheme that may be proposed; both are detrimental to the legitimate industry.

THE WORK OF THE PAST

When the American people took over the Philippine Islands they found a very efficient mining bureau in many ways, but the standards of the American people, while not always better, are at least different from those from whom we inherited these Islands, and so a change was thought necessary. In the last few years geology has become practically a new science; whereas it was at one time a study of the cloister it is now an applied science and all the great mining companies employ a corps of trained geologists who work ahead of and with the engineers who extract the mineral wealth. Many advances have been made in this science, and it is in America perhaps that the greatest strides have been made.

The first work of the Mining Bureau under the American regime was carried on by Judge Burritt, a lieutenant in the 12th Cav., United States Volunteers. Judge Burritt is a lawyer familiar with mining law, but neither a trained engineer nor a geologist. It was his duty to take over the records of the Spanish Mining Bureau and rearrange them and translate them for the use of his fellow countrymen. This long and tedious work accomplished, and well accomplished, he resigned in favor of the man who was to take up the thread where



DR. PAUL C. FREER, DIRECTOR OF THE PHILIPPINE BUREAU OF SCIENCE, WHO IS EVER READY TO ENCOURAGE THE PHILIPPINE MINING MAN.

he dropped it. This man was Mr. H. D. McCaskey, a trained mining engineer from one of the best mining schools in America. Mr. McCaskey's task was that of reorganization, and the mapping out of the technical work of the future. To this work Mr. McCaskey gave six years, the best years of his manhood. He had a big task before him, so big that the results of his labors may not be seen today or next year, even for many years. He did not demand credit for himself—so his work was done well he was satisfied; and finally, after six years, he returned to his home in the United States with his health badly impaired by his long, earnest, and trying labors in the Tropics.

The work of the present must necessarily be reconnaissance in nature, and should be an era of search, research and discovery. Accuracy of detail must be sacrificed to quantity and rapidity. We do not need to exercise supervision over mines when there are scarcely any mines at all; we cannot stop to develop properties—that is the work of the promoter and the capitalist; we must make broad and far reaching surveys, delimit the grander formations and point the way to the prospector.

When something has been found and capital has come in to develop it, then it will be our task to concentrate our work on individual mining fields, to provide regulations for the care of miners and other laborers connected with mines, to protect the public from false statements and keep a record of production.

TOPOGRAPHICAL SURVEY

The great and crying need for the work of the geologist, engineer, and operator is an accurate topographical map of the public domain on the general plan of the U. S. Geological Survey topographic maps. We need not dwell on the merits of such a map now. They are apparent to those who have done any engineering work.

A large amount of work is being done at this time by the several bureaus of the Philippine government, but we do not exaggerate when we say that fully two-thirds of the present map work being executed will be valueless in the future. A topographic map should be made by a topographer and not by just any one who happens to know how to use a transit. Perhaps we are doing the best we can, but the waste of time, energy, and money could be obviated with greater cooperation and uniformity.

Such an undertaking would require an immense expenditure of money and could hardly be borne in its entirety by the insular government. Possibly aid could be secured from the federal government. If the administration wants to do something that will be of lasting benefit to the Philippine Islands this offers opportunity. Prominent scientific and technical men in the United States have suggested this course—in fact it was Mr. McCaskey's great dream. Perhaps we are dreaming now but nevertheless we shall never cease hoping.

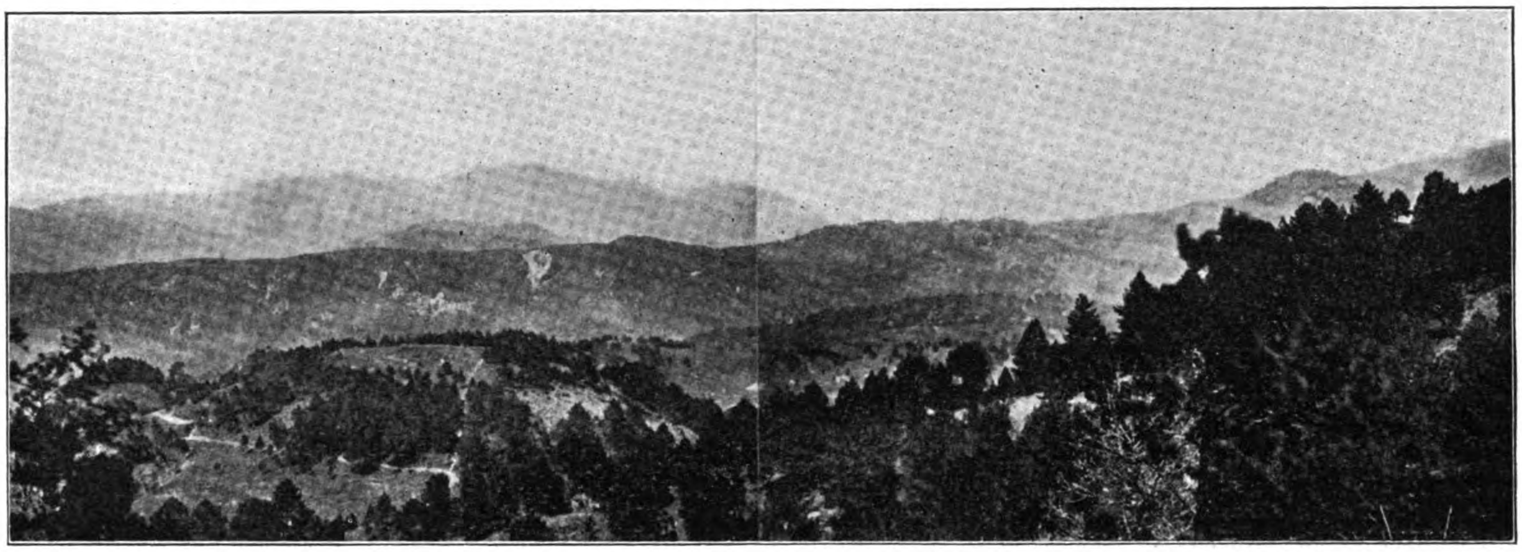
SOME FACTS THAT MILITATE AGAINST THE MINING INDUSTRY

In the interest of the welfare of the mining industry of the Philippines, the Mining Division wishes to impress upon the minds of the fraternity the desirability of conservative advertising. It were better for a new mining district to have to wait, however impatiently, until its resources are finally appreciated than to attempt to force matters through statements that are misleading or false.

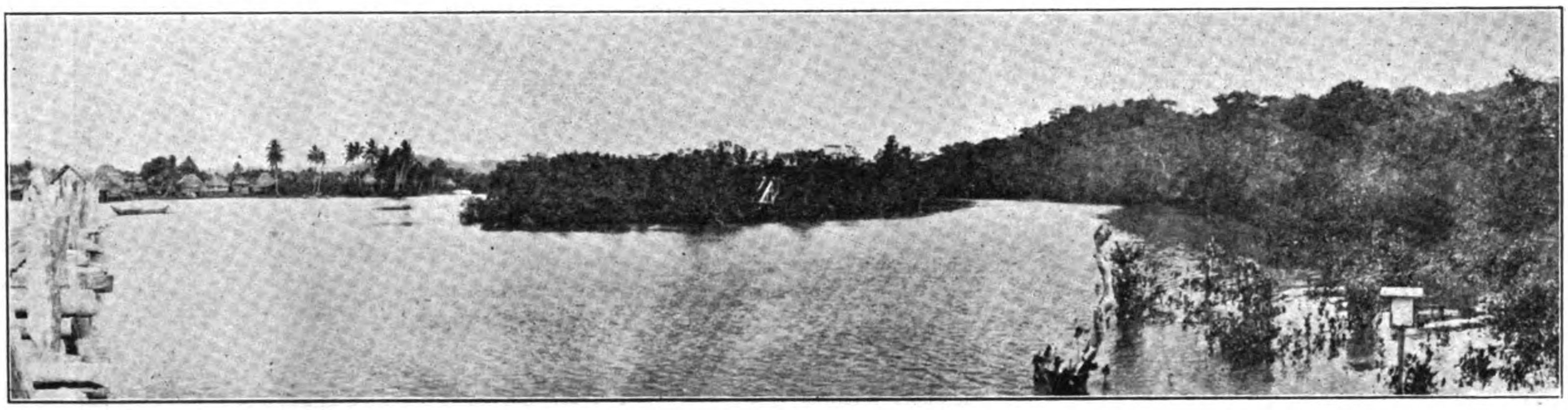
Unfortunately, in our opinion there is no specific law in the Philippines bearing upon this subject. Several states in the United States have recently followed the example of the California state legislature, which body passed an act in 1905 deeming it a felony, should any officer of a corporation transacting business in that state, assent to the publication of any false or wilfully exaggerated report or prospectus of his company.

A fake prospectus must eventually be proved a fake and the particular camp it is booming, irrespective of its true merits, then receive a set-back from which it may be long in recovering. This has been proved time and again in our own West, where several mining camps eventually proved their worth in spite of, rather than as a result of, the misguided rantings of the boomer. Not that legitimate advertising and honest promotion is discredited, for frequently they are the only means available to bring the value of a prospect or mine to the attention of those having capital to invest. Our intention is rather to counsel the bona fide prospector and miner against printing exaggerated or misleading reports and prospectuses. Already there prevails in the minds of only too many men, otherwise reasonable and intelligent, the impression that all mining is a fraud devised to swindle innocent widows and orphans and perhaps even business men. As a matter of fact no business can be fairer or cleaner than legitimate mining, honestly conducted. Particularly is this true of gold mining where the market of the product remains independent of any possible trust combination or competition.

There are other men who declare mining a gamble, and these come nearer the truth, although not so close as they imagine. Mining and metallurgy have become far more exact sciences than could ever be claimed for them in the past, and an estimate of the true value of a mining property which has been properly opened up and developed may be obtained by a competent mining engineer with a far greater degree of accuracy than the uninitiated may suspect; for all that however, there is a sufficient element of uncertainty connected with mining operations to warrant the assertion that all mining more or less is a gamble. A wise precaution on the part of the prospective investor, therefore, should be



PANORAMA OF THE BENGUET GOLD COUNTRY.



SCENE ON THE PARACALE RIVER, CAMARINE, SHOWING FIRST GOLD DREDGE USED IN THE PHILIPPINES.

to see to it that the odds he is getting are at least as good as he could expect in any other business enterprise. Where the chances are great, the possible returns from a comparatively small investment should be proportionately large. Having taken all reasonable precautions, should the venture prove a failure he will then have no cause for self reproach. A man who puts his money into a so-called mining enterprise merely on the strength of a gaudy prospectus or an alluring advertisement, invites disaster and should not put the blame of his loss on the innocent profession of mining. A man who has an important legal suit on his hands will in nearly all instances depend upon competent legal advice to win his suit, but in the business of mining, although the money involved may be far greater, he usually depends entirely upon his own limited knowledge of the profession or upon that of a so-called practical man, or in fact upon any one who can be accused of possessing that vague asset of common horse sense, the lack of which strangely enough, no man will admit.

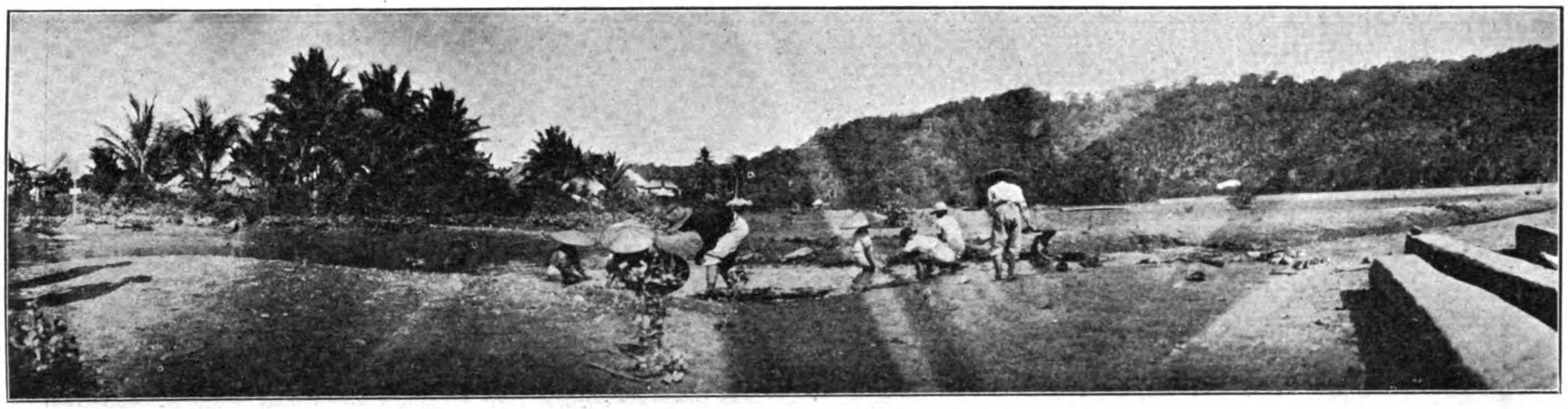
A very common cause of failure, particularly of young mines that are managed by practical men, is the premature purchase and installation of mining machinery. Not only may the machinery purchased be ill adapted to treat the bulk of the ore to be extracted from the mine in the future, but the mill site chosen before the plans of development are finally decided upon may frequently be badly located to permit of economy in the transportation of the ore between the mine and the mill. But worst of all is to find oneself with a more or less complete plant with no ore to work. In nearly all cases this can be attributed to short-sightedness on the part of the managers and owners who, desirous of making a good showing to facilitate the selling of stock in the mine, have invested their limited capital in machinery rather than in prospecting and development The result usually is, more or less stock sold, a small amount of ore either on the dump or from near the surface worked out, and then all the machinery stopped. Another failure is then recorded and the brunt of it to a large extent falls upon the other mines and prospects in the district. The cases suggested above, while hypothetical to some extent, have all played their part in the history of mining in the Philippines and it is to caution the miner and small investor that they are here recorded.

GEOLOGY

Having now stated some general principles or some general factors which influence the mining industry, and having stated the policy of the Mining Bureau of the past, of the present, and what it is to be in the future, we shall give a general summary of our present knowledge of Philippine geology.

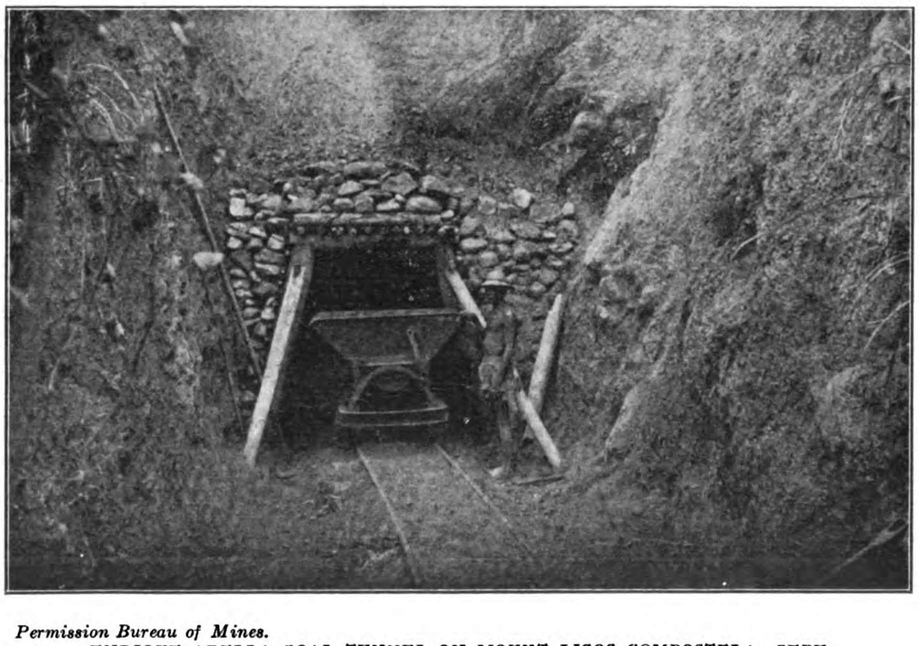
First we quote at length from Mr. G. F. Becker, the first American geologist to visit the Philippine Islands for the purpose of geological investigation, but who necessarily had to depend largely upon information from the Spanish engineers. Dana so long ago as 1833 visited the Islands as a member of the Wilkes' expedition, but he was largely engaged in an investigation of corals and coral islands. Mr. Becker wrote as follows:

"From early paleozoic times onward an archipelago has usually marked the position of these islands. Prior to the Eocene nothing definite is known of them, but further investigation will very likely disclose Paleozoic and Mesozoic strata there, as in the Sunda and Banda islands. During the Eocene it is probable that the lignitic series of Cebu were deposited, and the contorted indurated strata which in other localities also carry black lignite relatively free from water, should be referred provisionally to this period. Whether the nummulitic limestone found at Binañgonan is Eocene seems to me to be an unsolved question. After the Cebuan lignitic epoch a great uplift and folding took place, and this may have been a detail of the late Eocene movement that so profoundly modified Asia and Europe. It must have brought about temporary continuity of land area between Borneo and Luzon. Somewhere about the middle of the Miocene the country sank to a low level. Many of the present islands must then have been far below water, while Luzon and Mindanao were represented by groups of islets. Observations appear to suggest that the Agno beds represent the basal conglomerate formed at this subsidence. A slow rise began again during the later Miocene, and may have continued to the present day without inversion, yet the actual distribution of living forms is such as to give some grounds for believing that at some intermediate period the islands were a little higher than they now are, but sank again only to rise afresh. The diorites and associated massive rocks including their tuffs may have made their appearance about the close of the Paleozoic. The less siliceous of these rocks seem to have followed the more siliceous intrusions as a whole. The gold deposits, and perhaps other ores, are so associated with these massive rocks as to indicate a genetic relation. The neo-volcanic period began as early as the highest Miocene horizon, and very probably at the post-Eocene upheaval. If the semiplastic marls of Cebu are all Miocene, the earlier andesite rocks, at least, date back nearly to the great upheaval. Among these rocks, also, there is sometimes a tendency for the basalts to follow the andesites, but the one dacite found at Corregidor is later than the andesites of that island. The relation of the trachytes to the andesites is not certain but the sanidine rock is probably the earlier. A very large part of the neo-volcanic ejecta has fallen into water and been rearranged as tuffaceous plains. The volcanic vents appear to me to occur rather on a network of fissures than on a single system of parallel diaclases and the volcanic activity is to be regarded as a thermal manifestation of the energy of the upheaval."



NATIVES WASHING FOR GOLD ON THE PARACALE RIVER, CAMARINES.

In all essentials Mr. Becker is entirely correct; however, one or two corrections are necessary. The "nummulitic limestone" is an orbitoidal limestone and should be referred to the Miocene and not to the Eocene. In all the years since 1898, the time of Mr. Becker's visit, diligent search has not revealed any formation older, or known to be older, than Eocene and, in fact, we cannot absolutely state that the coal measures are even as old as the Eocene, though there is every probability that they are. It is possible, then, when sections have been made, either by traversing deep cañons through the Cordillera of Mindanao and Paragua or by deep shafting and tunnelling, older sediments may be found, though the chances are that they have long since been metamorphosed into schists or other metamorphics so that any organic remains that they may have contained would now be beyond recognition.

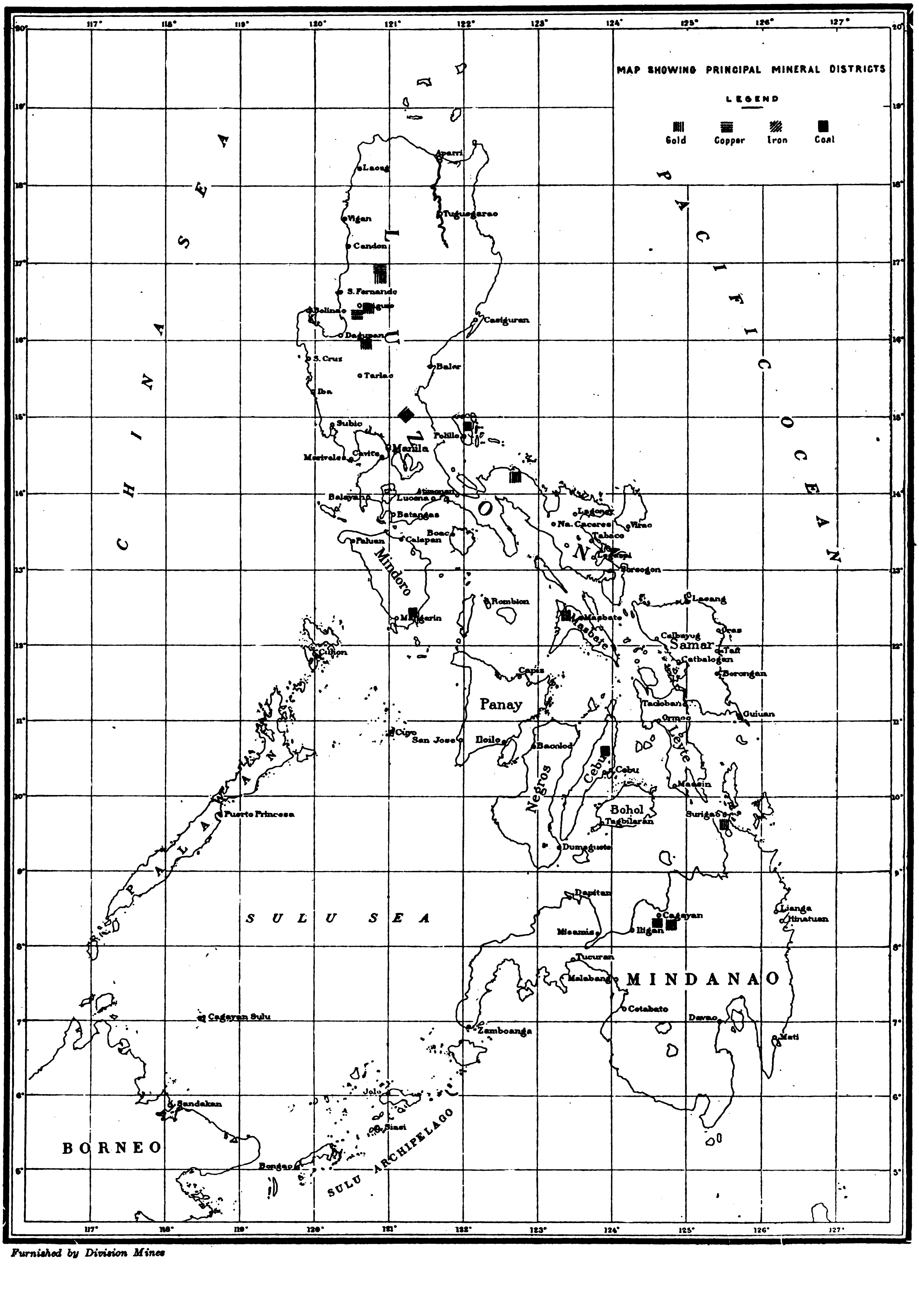


Permission Bureau of Mines.

ENRIQUE ABELLA COAL TUNNEL ON MOUNT LICOS COMPOSTELA, CEBU.

Two questions are often asked by people interested in mining and mineralogy. One is: "Is not our coal the same as that of Japan, and is not our geology the same?" To both parts

(Continued on page 8.)



Furnished by Division Mines

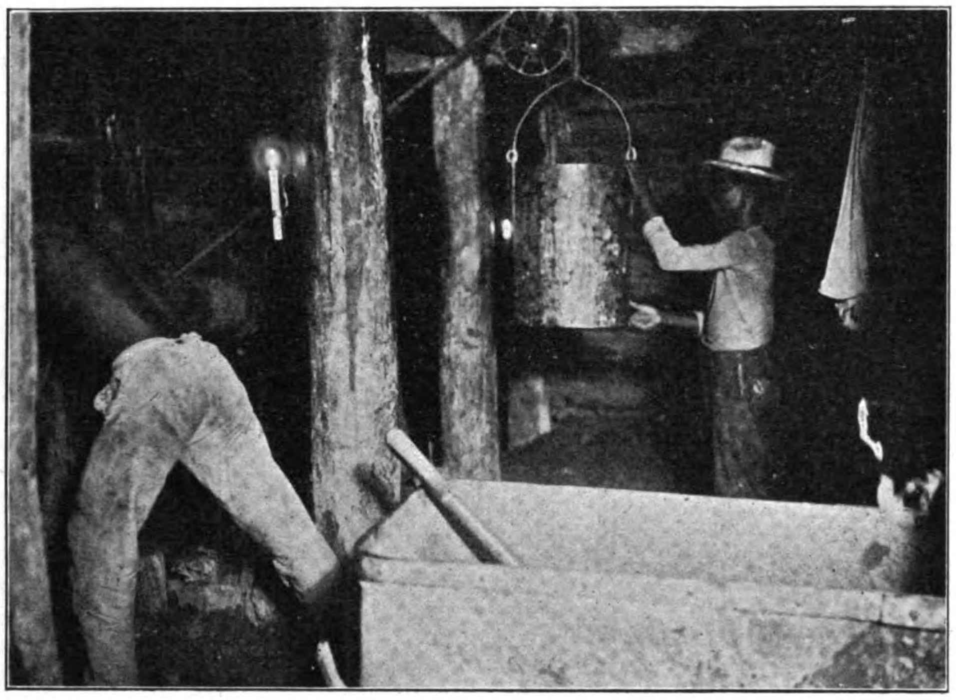
PHILIPPINE TIMBER FOR MINING OPERATIONS

Timber and water, so desirable in the development of the mining industry of any country, may be said to be plentiful in every mining district of the Philippines. In commenting on the timber available in the different mining regions Major Ahern, director of the Philippine Bureau of Forestry, says:

"The timber most available for mining purposes in the province of Benguet is the Benguet pine which is found in fair quantities. The sapwood of Benguet pine rots easily in contact with the ground, and stumps of young trees disappear in three or four years. The heartwood, however, lasts fairly well in the ground, and when very resinous is practically indestructible by fungi. The resinous hearts of the old pine trees are used by the natives for heavy corner posts of their homes. Benguet pine can also be found in fair quantities in the province of Lepanto-Bontoc, but no examination has been made as to the exact amount available.

"Assuming that all commercial timbers in the islands are equally available, the following timbers could be classed as the most durable for mining purposes:

"Ipil, Molave, Sasalit, Betis, Dungon, Yacal, Tindalo, Aranga and Bacauan. Perhaps the most accessible and abundant wood not far from the coast is that known as Bacauan. This includes several different woods found in the salt water swamps. Besides the woods referred to are many whose durability is as yet unknown and may prove of value."



A SHAFT IN CLARKE'S MINE, BENGUET.

"Many valuable native woods are to be found in the region of Angat, Bulacan. On the front range of hills where the iron mines occur the forest is not so good as on the higher hills of that district.

"On the islands of Polillo and Batan where coal occurs there is plenty of mining timber, and these regions have never been exploited to any great extent.

The following notes are extracted from the Report on Forest Conditions in the Mining Region of Aroroy, Masbate, by Forester H. N. Whitford:—

"February 21, 1907.

"In all instances, the mines in this region are located in commercial forests. Where these mines are situated well up the slopes, they are within easy reach of the ridge type of forest, in which valuable first group woods are found. Where they are situated in the lower slope type of forest, the most accessible timbers are of the cheaper grade. All the timbers that have been cut up to the present time are within easy reach of the tunnels in which they are placed. In one mine, Tamayuan is being used extensively for props and footings. The trees selected are usually about 8 to 12 inches in diameter. Before placing they are barked, but so far as observed no attempt has been made to remove sapwood. Indeed, the tree, when mature, is seldom as large as 15 inches in diameter, so that the removal of the sapwood would, in many instances, leave the log too small for use. In this mine, young trees of all timbers in the vicinity are used for siding, especially Lauan, probably because it is most abundant. In one other mine, no attempt has been made to select timbers for props and footings, all being used indiscriminately and placed at once after cutting in the mines without barking.

"The cuttings in the vicinity of the mines are not extensive. With development, however, the demand for timber will be increased. It is to the interest of the companies to utilize the timbers to the best advantage, for if they do not do so, they will soon destroy the forest within easy reach. The custom of removing only small timbers is against all principles of silvicultural management. It means the destruction of a crop that should be left for future

THE GEOLOGY AND MINERAL RESOURCES OF THE PHILIPPINE ISLANDS

(Continued from page 6.)

of which the answer is no. In Japan a vast series of formations between the Eocene and the Archean are represented which we do not have, or, rather, have not yet found in our record; and in Japan they obtain coal from these different horizons, one of which is the Carboniferous, or the same as that in which the Pennsylvania coal of the United States occurs. The second question is: "Are there not to be found in Mindanao tin and diamonds?" Tin in most places in the world is associated with granitic rocks, greissen and granite gneisses. Up to the present time these rocks have not been encountered, save in one instance, in Mindanao, and to a limited extent in the northern part of Luzon. Not long since, an unscrupulous fakir from Mindanao reported tin in the vicinity of Cagayan, but on investigation it was found that the tin came from Australia and not from these Islands at all. Some have the idea that diamonds are to be found in Mindanao because they have been found in Borneo, but the diamonds come from the southwestern and northwestern part, while none have been found so far in that portion of the island nearest Mindanao, and the portion nearest Mindanao is geologically very much the same as the southwestern part of that island.

There seems to be a great deal of doubt in the minds of many people regarding valuable minerals in these Islands, but the pessimism is generally expressed by people who are willing to be satisfied with chance information and gossip and who really want the answer in the negative before they ask it. The output of gold in the island of Formosa during the last year amounted to over a million dollars. Now we know that the geology of Luzon and Formosa is not essentially different. We also know that conditions in the interior of Formosa are much less conducive to safe and rigorous prospecting and mining than in northern Luzon. There is gold in northern Luzon.

As yet we know of no bonanzas, but there are many properties which contain a large amount of low grade ore which would amply repay (and in one case *is* paying) the man or men who will have the patience and exercise the proper management. Only within the last few days has telluride ore been positively identified in a sample sent down from the Lepanto region. In Masbate we have several properties which have been examined by competent men and proved to be distinctly worth while. In the Angat region there are known to exist great bodies of hematite of bessemer grade which, as soon as a coking coal can be found or shipped in here, at reasonable prices, will prove an immense asset to the economies of the Philippines. In Lepanto Bontoc private and government surveys have shown to exist an enormous body of copper ore, but which up to the present time has been neglected owing to the one great obstacle, transportation. A company composed of influential and trusted men of the city of Manila has lately been formed and applied for a franchise to build a road connecting this field with the coast.

After many years of stormy criticism articles are appearing in the daily papers justifying the Benguet Road, but it seems that the one great reason for its justification is omitted. It is a matter of individual concern only that our public officials have a place to go to spend the hot summer months; but it is a matter vital to the general weal of the whole Philippine Islands that there is a means provided for hauling into the interior stamp mills and cyanide plants and other heavy machinery. This is the real justification of the Benguet Road, and, neglecting for the moment the question of cost, the building of the Benguet Road will probably be considered one of the wisest acts performed by our Philippine Commission in its whole period of service, and the sooner we build more of these roads, the better.

After long years of waiting we have seen another and definite start made in the exploitation of the coal of the Philippine Islands. One company has been organized, has been carrying on development work for a matter of six months or more, has procured machinery and built a tram road, and promises soon to have its coal on the dock in Cebu. Other capitalists have experts examining various fields and from their method of procedure and from what we know of the men involved, if the coal justifies any expense at all it will be properly and speedily placed at the disposal of consumers. In at least two localities in the Islands there exist the raw materials for the making of cement, and a capitalist has asked for a franchise to operate a plant erected according to modern ideas. It is our sincere hope that neither the government nor the people of the Philippine Islands will place any obstacles in the way of the man who proposes to carry out such an undertaking.

use. The mature crop should be cut first. For Molave and other first group timber, the minimum diameter limit should be fixed at 50 cm. While the cutting and preparation of large timbers may entail extra expense that the companies are not now prepared to meet, yet as soon as they are on a firm financial basis, such timber should be utilized. With the power that is necessary to operate stamping mills, etc., they could easily, and with little expense, install a sawmill, which would enable them to handle the larger trees, the waste of which could be utilized for fuel. Such a step taken now would mean great saving in the future. The history of all mining regions shows this.

"Timbers are necessary for two general classes of construction, viz: temporary and permanent. Many temporary tunnels are run in the development of the mines. These can be timbered with the cheaper woods, among which are Lauan and Toog. If such tunnels prove to be permanent, the timbers can be replaced. Of course Molave is the most durable, and it could be used for footings and posts. The supply of Molave is limited, however, and unless it is utilized with the greatest care, it will soon be exhausted. The same can be said for the other first and second group timbers, such as Narra, Tindalo and Dungon. As a rule, these timbers should be saved for the most permanent structures, as posts for mills and other buildings, and special places in tunnels. Tamayuan appears to be more durable than any of the cheaper grade timbers, but if used exclusively for props, etc., the most accessible supply will soon be exhausted. Little or nothing is known of the comparative durability of the remaining timbers. Two of the most promising of these are Toog and Dao. Magalipac, Marobo and Lauan are much softer and probably much less durable. There is no doubt that all of these timbers are far less durable than the well known first and second group woods. Experience alone will tell which are most suitable. Amuguis, Guijo and Apitong are of a better grade, but are limited in amount.

"On the east side of Barrera Bay there are two areas of mangrove swamps (mangles), occupying in all some 10 square kilometers (2500 acres). These lie at the mouths of the Guinobatan and the Lanang Rivers. The latter is most extensive, and except for narrow strips along both margins of the river, has been little utilized. The Philippine Mining Co. uses exclusively the wood of this swamp as firewood for their dredging engine. The species principally used is Bruguiera parviflora W. and A., known locally as Jangaray. The wood is cut at a contract cost of ₱2.25 per cord, and is transported in a barge a distance of about 5 kilometers for ₱1.25 per cord. This makes a total cost of ₱3.50 per cord. Two cords of this very excellent wood will supply the engine with fuel for one day (20 hours).

"On account of lack of time, no attempt was made to estimate the number of cords per acre. Until such an estimate is made, no accurate information can be given about the number of cords of wood in this mangle. However, it can be stated that at the present rate of cutting the present crop, this excellent wood supply will last a great many years. Reproduction is excellent, and long before the present area can be cut over sufficient time will have elapsed to re-stock the first cut over areas. The danger lies in cutting too closely the forest within easy reach of water transportation. As the edge of the cuttings is pushed back from the banks of the streams and large esteros, the difficulty of transportation will be increased. Although not thoroughly investigated, it is believed that the area within immediate reach of the waterways is so large that a judicious selection of mature timber will bring about a rotation of crops that will keep the cutting area indefinitely within easy reach, so that all firewood can be cut and loaded on boats with little or no land transportation. To be sure, mangrove swamps are so interlaced with tidal channels that the entire body of timber is no great distance from the water's edge, but many of these channels are too small to allow the entrance of barges. The extra handling of the wood along such channels will add materially to the cost. It is therefore to the interest of the company to so conduct their cutting operations as to avoid this extra handling.

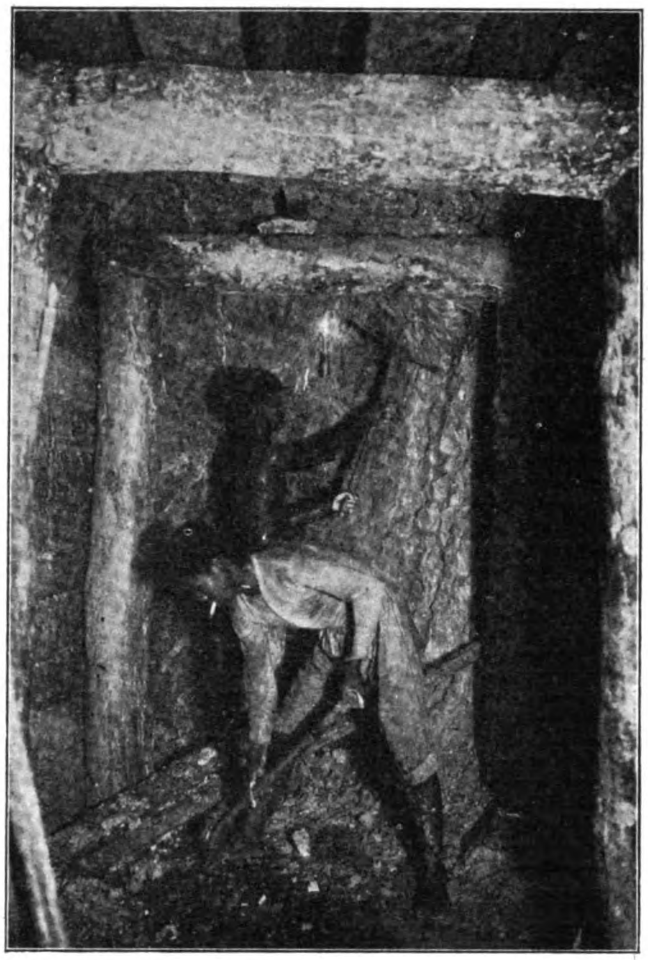
"The ore region is some distance from the navigable portions of the rivers that run through the mangrove swamps (see map). Whether or not they use the excellent firewood of mangle or the poor quality of fuel in the timber at hand depends entirely upon the cost of transportation of the former. Mr. Eveland states that the Eastern Mining Company pays ₱4.00 a cord for mangle wood delivered at the mine. The Mt. Cogran Co. is depending entirely on the softer woods found nearest the source of consumption. This is mostly Lauan.

"It is a well known fact that timbers of equal quality will last much longer in temperate than in tropical regions. This is due to the devastating action of the white an and fungus growth. The former is not present in temperate regions; and because of continuous warmth and almost continuous moisture, fungi are more destructive in the tropics. While it is true that there are few timbers like Molave that will last longer in tropical conditions than the best timbers of temperate zones, yet most of the tropical timbers are exceedingly rapid in decay. However, these same timbers, if used in similar situations in temperate zones, would probably last as long, if not longer, than many of the woods used there. This goes to show that the tropical miner cannot expect the common timbers that are placed in his mines to last as long as his experience in temperate regions has seemed to teach him they should. last. Many of the timbers now thought to be of little value would probably outlast the common trees of temperate zones in exactly the same conditions.

"Arrangements have been made with three mining companies in the Aroroy district to label timbers placed in their mines, in the construction of mills, etc., so that they may be examined at some future period as to their durability."

The following notes are extracted from Report on the Forests of Danao, Cebu, and timbers used by the Insular Coal Co., By Forester H. D. Everett. Feb. 1907.

"Much timber was used in the coal mines in former times in the form of ties for the tramway leading from Camansi to Danao. in Cebu, and in the form of posts, caps, and lagging for the tunnels. The company which operated the mines in Spanish times in the majority of cases used the most durable timbers of the first group for the tramway and tunnels, such as Molave and Tindalo. Most of the timber used in the Compostela mines was placed in the years 1895 and 1896. They are mostly Molave, Tindalo, Yacal and Narra, with a few of the inferior or little known species, which grow in the neighborhood. The lagging was poles of Datilis or Caballero. Some of the old tunnels are now being cleared out and new timbers put in where the old ones are no longer serviceable. Thus far, in the Enrique Abella tunnel not more than forty per cent of the old posts and caps have been removed. Many of the Molave timbers are found to be perfectly sound after about twelve years' service.



INTERIOR OF THE CLARKE MINE WHERE THE RICHEST DEPOSITS WERE FOUND.

"An examination was made of several specimen sections which were taken from the ends of the old posts and caps where the timber was in contact with the soil, with the following results:

"Tindalo and Molave posts somewhat affected, but fairly sound.

"Betis posts, good condition.

"Guijo, Bogo and Nipot-nipot posts, badly rotted.

"The timbers from which the above results were obtained were placed in the mines during the period from 1895 to 1897. In general, the caps are sooner affected by decay than the posts.

"In the Camansi mines, a large proportion of the inferior or little known woods of the locality were used, some of which proved very durable, and were almost as durable as Molave for the purpose for which they were intended. Some of these inferior woods are Taguilumboy,

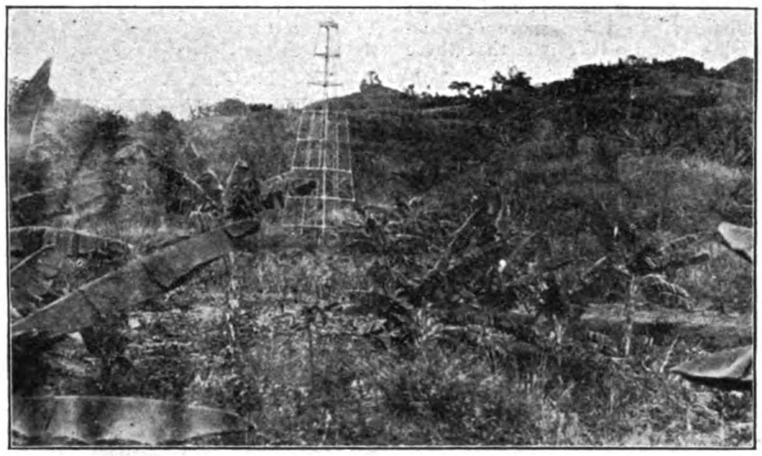
NON METALLIC MINERALS

By WARREN D. SMITH, Government Geologist

I take up the non-metallic minerals first because in other countries where accurate statistics have been kept it is seen that they more than offset in monetary value the metallic products. In the year 1905-6 the total value for non-metallic products in the United States amounted to $921,024,019, while the metallic products came to the sum of $702,453,108.

FUELS

Coal:—Coal has been found in nearly every island of the group; in many places associated with petroleum, and in others not. The coal is pretty much the same throughout the Archipelago, it is a sub-bituminous coal having the appearance and specific gravity of a lignite, but the carbon contents and streak of a bituminous coal. When mined from beds near the surface and beds which have been little disturbed since their deposition, the coal is apt to be very inferior, having only about fifty per cent of the efficiency of Australian coal, but in regions like the Compostela and Danao fields, or the western end of Batan Island, the coal is of a decidedly superior grade. This is due not so much to compression in folding or to volcanic heat as it is to the fracturing of the coal so that a process of dry distillation takes place and a greater quantity of fixed carbon is segregated. The promising coal fields at the present time are as follows: Cebu, in the region behind the towns of Compostela and Danao; the Island of Polillo, which is on the east coast of Luzon about opposite Manila; the southern portion of the Island of Mindoro in the vicinity of Bulalacao, and on a small island just to the south of Bulalacao; Batan Island about twelve miles northeast of Legaspi, in Albay Province; the northern portion of Dinagat Island, just north of Surigao, Mindanao; and near Escalante in the northeast corner of the Island of Negros.



Permission Division of Mines.
THE ONLY OIL DERRICK IN THE PHILIPPINES. ERECTED IN CEBU.

While these coals have stood some very good tests in stationary and marine engines, still they are far from satisfactory, and, following the lead of the United States Geological Survey at St. Louis, Dr. Cox, of the Division of Chemistry, has experimented with these coals with a view to establishing the feasibility of utilizing the gases in gas producer engines. Theoretically his conclusions appear to be correct, i.e. feasibility of utilizing them in this way; but the next step is a mechanical one and it is here that the most trouble has been experienced in utilizing a coal gas in this manner, in the United States and other countries. However, we feel sure that in time the problem will be solved so that it will be a practicable undertaking. I should state here that Mr. Gilkerson, mechanical engineer at the Bureau of Science, and Dr. Cox, are designing and arranging for the erection of apparatus on a large enough scale to make a complete and practical commercial test of this process.

It is not a question with us of quantity of coal so much as it is a question of ability to mine the coal without a loss. In one sense the geology of the Philippines and Japan is very similar, that is in structure, both regions being profoundly folded and faulted, which of course increases the difficulties of mining. In Cebu, during my last visit, I traversed one small creek in which I passed in succession across four coal beds, No. 1 was five feet thick; No. 2 about ten feet thick; No. 3 about thirteen feet thick; and No. 4. two feet thick; and these beds appeared to be fairly continuous, and I may state that a bed of coal six feet thick is considered by many engineers as good as one forty feet thick, in that it is easier to mine.

Natural Gas.—In Rizal Province and on the Island of Marinduque some small amounts of natural gas have been found to issue from the ground, but further than this we have no record of these occurrences and so far as I know they have elicited but scant notice.

Petroleum.—The subject of Petroleum I shall treat more at length in another part of this number. Suffice it to say here that small amounts of petroleum have been found in three localities in the Philippines, namely: Tayabas Province on the east coast and Cebu Province on the west coast near Toledo and Alegria. There is, however, a more serious feature connected with petroleum than its geology, which I may say is not altogether favorable in these places. Looking at it from a purely business point of view it is not a good proposition for the simple reason that there is only one concern that can handle oil in these Islands and it is not willing to go out of its way to look into a proposition which does not appear to offer great returns. If someone were to develop these properties and establish several good wells this company might then take hold of it. A small local concern could not survive very long in the field under present conditions.

Materials of Construction.—I am frequently asked if there is any great natural cement rock in these Islands. I have not yet found such nor would it make any serious difference if we do not, for the simple reason that it is possible to take the raw products, limestone and shale, and gypsum and make a far better product than nature. Sometimes nature by accident succeeds in making a very good cement; but this is only an accident and a very uncommon occurrence. We have in several places all the material for our purpose. We have literally hundreds of square miles of a very fair limestone; shale and clay beds are by no means uncommon. With reference to the gypsum I do not know of any considerable amount very close to both limestone and shale deposits, but the amount needed per annum is a mere bagatel and could be easily transported to the factory.

We have more stone than anything else in the Islands and much of it makes a fine road metal, for instance the trap taken from the Talim quarries in Laguna. The Mariveles rock, a hornblende andesite, makes a fine material for breakwaters and railroad embankments. In the vicinity of Manila many cubic feet of a tufaceous stone locally known as 'dobie or Guadalupe stone is quarried and hewn into blocks; these have been used for a great number of years for building purposes in Manila and we find it in nearly every church and wall about Manila. In Ilocos Norte on the Caraon River there is a very good granite which has white mica instead of the more usual darker mineral; this might find some use for ornamental purposes, trimmings and monumental stone.

Abrasives.—In the southern islands there is considerable development of sandstone which would work up well into grindstone, and on the Muao river, Cebú, I found recently a deposit which appears to be very similar to the novaculite of Arkansas in the United States, which is the material from which our finest whetstones are made.

Hambabae, Putian, Camungayon, Mata-mata, and Amahuyam, all of which have proven fairly satisfactory.

"The conditions affecting the durability of mine timbers are different from those affecting an harigue or other timber exposed to light and air. The mining timbers are in almost complete darkness, are constantly dripping with moisture, and are covered with a slime. The air inside the tunnels is heavy, hot, laden with moisture, and varies little in temperature. Except at the entrance to the tunnels, the Anay is said not to work, and no injurious work of insects was observed in the old timbers; consequently conditions are not such as to cause the most rapid decay, though favorable to the growth of destructive fungi.

"The timbers used in the mines at present are in the form of posts, caps, and lagging. For each 100 meters of tunnel are used 340 posts, 170 caps and about 7000 short stakes for lagging, having an approximate volume for posts and caps of about 120 cubic meters. The wood used for lagging is a small stem of the Datilas or Caballero, a brushwood growing in thickets near streams.

"A coal mining operation on a fairly large scale would run about 1500 meters of tunnel per year, which would require about 300 cubic meters of timber for posts and caps, exclusive of the timber for the tramway and for general construction. Since the company is now working on a small scale, clearing out old tunnels and starting a few new ones, only a small amount of timber is required. This demand can be supplied by the neighboring forests for awhile, but as soon as the operations are increased, and J. G. White & Co. also commence extensive operations, it will be necessary to secure timbers from other sources.

"The Dungula growing on the tract of the Insular Lumber Co. should be an excellent mine timber. The Lumber Company are now cutting it, and from time to time a steamer load might be secured.

"Only further experience and observation will prove the suitability and durability of the many little known timbers of the islands for mining purposes. Some of these will undoubtedly prove very satisfactory.

"It is probable that in time it will be practicable and advisable to treat mine timbers with preservatives, thus enabling the use of the more abundant and cheaper kinds. Painting timbers with preservatives, or giving the timber an open bath treatment, will be found the cheapest method."

CHEMICAL MATERIALS

Gypsum.—Gypsum has been reported from several localities, but we have as yet no figures as to the extent of the deposits. One locality in the Loboo mountains, east of Batangas, appears to be quite promising. Gypsum would find use not only in cement manufacture, but also in the making of Plaster of Paris.

Phosphate.—Phosphate occurs in several different forms, in the mineral apatite as phosphorite or rock phosphate, land pebbles, and in guano, which is formed from the excreta of sea birds and bats. In nearly every cave that one enters over here he finds a dirty, coarse, granular soil on the floor, varying from a few inches to several feet in depth; this is usually guano, a bat guano, and if found in considerable quantities, say from several hundred to a thousand tons, it could be mined with a profit. The Island of Marinduque is said to have many caves containing this deposit. In one case as much as five hundred tons were estimated to be in a single cave. The only people in the east who handle this, I believe, are the Japanese.

Pyrite.—The chief use for pyrite is in the manufacture of sulphuric acid. As yet I have neither seen nor heard of any extensive deposits of this mineral, though it is probably the most widely disseminated of all the metallic minerals. I do not believe a plant erected for the purpose of making sulphuric acid alone would pay over here, but as a by-product incident upon the treatment of pyritiferous ores it should find a ready market.

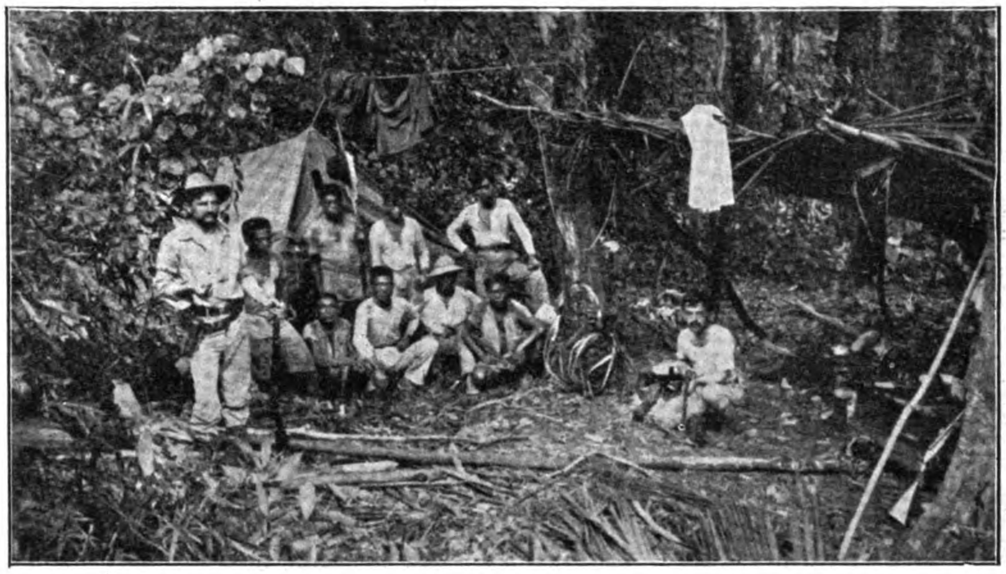
Sulphur.—Sulphur in small quantities has been found in Leyte, in Mindanao, in Luzon, practically everywhere where there has been any recent vulcanism. On a recent trip through Leyte Mr. Goodman, of this Bureau, made a very diligent search for sulphur, visiting some of the locally well-known solfataras, but besides a few tons he did not find any commercially valuable deposits. Were we to find any considerable product of sulphur here it would be a distinct advantage, in that sulphur is needed in the making of certain kinds of paper. Very good paper has been made by Mr. Richmond, of this Bureau, from abacá and cogon waste, but sulphur is needed in the process. Perhaps some mountain like Apo, which is known to be in a declining, or quiescent stage, will be found to have some sulphur near its crater. I have no doubt in my own mind but that there are considerable buried deposits of sulphur intercalated in the general lava flows which will be uncovered at a later time.

Salt.—As yet we have come across no natural salt deposits in the Philippines.

Mineral Paints.—In Ilocos Norte, as well as many places throughout the Islands, there are considerable accumulations of yellow and red ochre which ought to make a very fair article. A great deal of the ground mica and actinolite, greenish in color, might also be worked up into a fair grade of paint.

MISCELLANEOUS

As I am treating in another part of this paper the topics asbestos and manganese more at length, I shall pass briefly over them, making the statement here that indications of asbestos have been found in Ilocos Norte, but that no first grade variety has been located as yet; that there are not a thousand or millions of tons of the article in sight, as some reports have had it, and that there is no need of anyone rushing headlong into asbestos mining. Some of the asbestos is fibrous serpentine, but most of it is an amphibole under the name anthophyllite.



TAYABAS OIL FIELDS—VIEW OF BAYHAY RIVER AT POINT OF OIL OUTCROPPINGS.

Felspar.—Felspar is valuable for glazing purposes in the manufacture of porcelain. Near Caraon River in Ilocos Norte there is a considerable deposit of disintegrated quartz and felspar which might be so separated that the felspar could be used in the porcelain industry and the quartz used in the manufacture of glass. This would not make the best quartz for glass manufacture, such as that derived from a pure sand or a crushed quartzite, but still I think it would do very well.

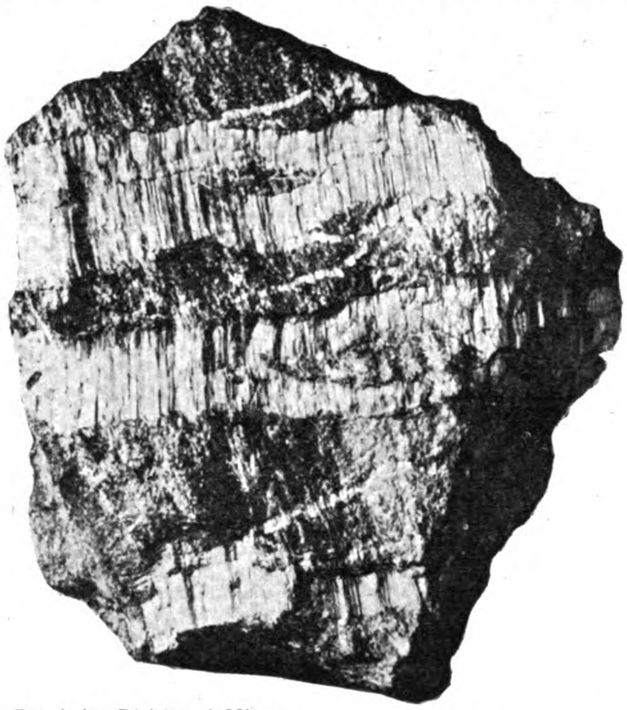
Magnesite.—Magnesite or magnesium carbonate is usually found along rifts in serpentines and pyroxenites. I have seen some patches of it on Batan Island off the Albay coast and in Ilocos Norte, but none in commercially valuable quantities.

Manganese Ore.—Manganese ore in the shape of pyrolusite, psilomelane and wad have been found in several parts of the Islands; in Masbate, in the Aroroy district, there is so much of it that it is mixed through the vein matter and causes a great deal of trouble on the mill plates. On the road from Capiz to Iba, in Zambales Province, a deposit of manganese ore has been penetrated by the road, but we have no figures as to the quantity. In Ilocos Norte there is a very peculiar occurrence of it, for there it is found as nodules, varying from a half inch to two and three inches along their longest diameters, usually somewhat flattened rather than round. These nodules are found scattered all over the surface over acres of ground and in some places in natural troughs between hills they are concentrated to the thickness of a foot or more. It is essentially a blanket deposit of natural concentrates. As yet I have seen nothing to lead me to believe the deposit of sufficient extent and depth to be of commercial value, though not enough development has been done to enable one to make a fair estimate.

Mica.—No sheet mica has up to date been found in the Philippines, but in Ilocos Norte considerable pockets of a very triturated mica occur. This could be used for lubricants, "frosting" for Christmas effects, etc., and were some small leaves of mica to be found they could be united into larger sheets and used for insulating certain parts of electrical apparatus.

Mineral Waters.—Since the year 1893, the date of the publication of the work entitled "Estudio Descriptivo de Algunos Manantiales Minerales de las Filipinas," by Abella y Casariego, Vera y Gomez and Rosario y Sales, no work of any importance has been done on spring and mineral waters. Many individual waters have been analyzed, but these have not yet been collected into one publication. Some of the well-known springs recorded in this work are as follows:

1. The spring of Lanot, near the pueblo of Diet, in the Province of Ambos Camarines. This water contains iron and carbonic acid.



Permission Division of Mines.
ILOCOS NORTE CHRYSOTILE VEINS ABOUT ONE HALF INCH THICK.

METALLIC MINERAL RESOURCES

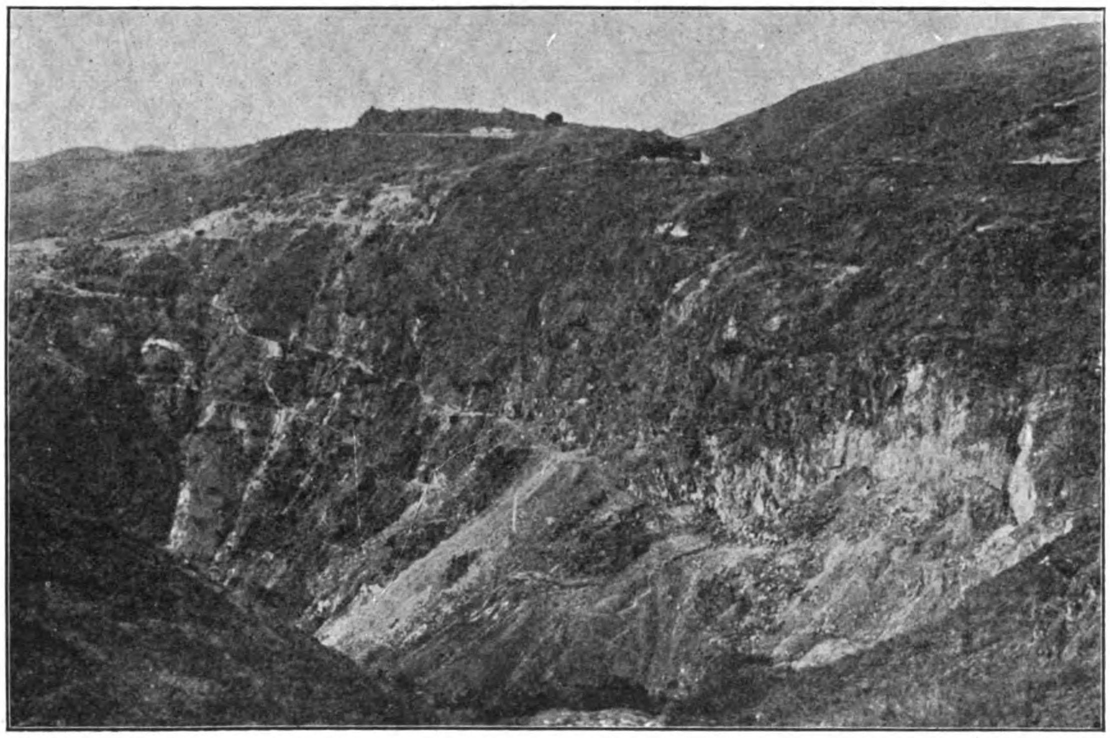
* By MAURICE GOODMAN.

GOLD

Of the metallic mineral resources of the Philippines, the noble yellow metal is easily the first and foremost in importance. It has been sought for and found in most of the provinces of the archipelago, but of them all the provinces of Benguet and Masbate rival for first place in the metal output and in general mining activity. Numerous claims have been located in both these provinces and several corporations have lately been organized to develop and operate several of the most important groups of claims. The success of some of the companies that have entered the field still remains in doubt, while that of others, to judge from their continuous operation and constant output, might naturally be considered assured although their financial reports are not available. There are other companies that have not yet attempted to break into the producer class but have exerted their energies in developing their properties and in blocking out ore. From these good reports are anticipated in the near future. As the mineral resources of the Philippines have been discussed at length in all the annual reports of the Chief of the Mining Bureau, copies of which may be obtained upon application, it will be necessary here only to make mention of the recent discoveries and developments.

Two new stamp mills have recently been imported into the islands. One, a Hendy Quadruple discharge six-stamp mill, will be erected in Benguet, and the other, a ten-stamp mill of the Risdon type, is now being erected in Masbate. On the other hand a ten and a five-stamp mill have been shut down in Masbate, so that the prospects for an increased output this year seems doubtful. New discoveries have been made, however, which promise well for the future. At Binanlonan, in the northern part of Pangasinan, some rich but narrow veins of free milling ore have been discovered and at least two companies are engaged in active exploration work in that field. Unfortunately internal dissensions have been interfering with a rapid progress in this district, but with the settlement of disputes the outlook for the new mining camp seems favorable.

The island of Marinduque also offers a new, but small, field for the prospector. Recent discoveries conclusively prove the presence of gold-bearing veins, and while no bonanzas have been encountered the company most active in prospecting the district declares itself well satisfied with the showing thus far made and is prepared, should the prospects continue favorable, to open up and develop its properties on a larger scale.



MANCAYAN COPPER MINES.

2. The spring of Pansol, near the pueblo of Calamba, Province of Laguna. This contains bicarbonate of soda and potash.
3. The spring of San Mariano de Nagtanglan, pueblo de Pozorrubio, Province of Pangasinan.
4. The Spring of Mainit de Bosoboso, pueblo of Bosoboso, Province of Rizal. This contains sulphur and hydrogen, besides nitrogenous matter.
5. The spring of Mulag, pueblo de Carcar, Carcar, Province of Cebu, whose water is much the same as that from Bosoboso.
6. The spring of Tagdag or Bolocboloc, pueblo of Barili, Province of Cebu. This contains a mixture of bicarbonates.
7. The spring of Neabe Rancheria, Itogan, in the Province of Benguet.
8. The spring of Cotabato, pueblo of Cotabato, Mindanao, and several others.

However, the two most important today and which are not here mentioned are the water of Sibul Springs, near the pueblo of San Miguel de Mayumo, in Bulacan Province, and the Los Baños water, better known as Isuan. Both these waters have a reputation for beneficial medicinal qualities. The Sibul Springs water has a temperature of only about 82° Fahrenheit and contains sulphide of hydrogen. It is a very soft water and pleasant to drink. Its lack of heat, however, makes me think that the beneficial effects due to bathing in it have been somewhat exaggerated. The good qualities of Isuan have been added to by artificial charging with gas; however, its high temperature combined with its mineral ingredients, is said to make it a splendid curative for certain ailments.

Precious Stones.—No stones of gem quality have been reported; however, in Ilocos Norte I have seen some poor specimens of opal which showed a little fire. Diligent search in this region might bring some very fair specimens to light. Some small topazes have been found in streams in Ambos Camarines.

Pumice Stone.—In a region of such great vulcanism as ours we ought to find quantities of pumice; in fact, we do find a great deal of pumice fragments scattered throughout the tuff deposits around Manila, but I have seen no big pieces of it so far.

Quartz.—Near the pueblo of Pasuquin, in Ilocos Norte, there is a dike consisting largely of quartz and felspar. This rock could be crushed and the two minerals separated, the quartz could then be used in the manufacture of glass. Ground quartz is also used as a filler in paints, as an abrasive, and the larger quartz crystals might be sometimes used for spectacle glasses.

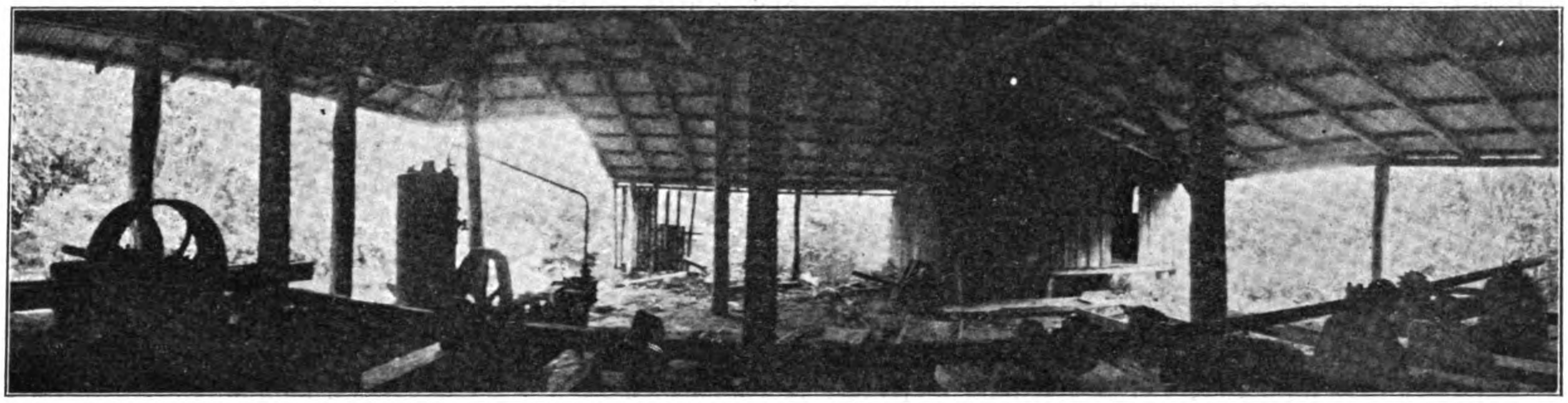
Sand: Molding, Building, Etc., and Gravel.—We have no statistics at hand in regard to molding and building sand and gravel. For building sand we have an abundant supply on our beaches; and in the beds of our many rivers we have an unlimited amount of gravel, great quantities of which are being used every year on roads and in concrete work. The only sand that we have found at all approaching a molding sand, which of course must have certain properties, is a sand occurring as intercalated beds in the tuff deposits near the city of Batangas. This sand is very fine-grained, free from pebbles, and can be molded into any shape desired: I think the supply is unlimited.

Talc and Soapstone.—The only talc that I have so far seen in the Philippines comes from Ilocos Norte, near the pueblo of Pasuquin. It occurs in irregular pockets with micas and the schist area bordering the serpentine mass. This talc would doubtless find ready application as a loading material for paper.

I have not seen any soapstone nor have I any reports of its occurrence.

* Mining Engineer, Division of Mines.

The gold mining industry in the Northern Camarines has been showing signs of awakened interest. While this is more true of placer than of quartz properties, the latter too, have been the subject of negotiations recently, which, if successfully concluded, may bring about a resumption of mining operations here. These properties are reported to have yielded much rich ore in the past and were the only mines operated with an approach to modern methods during the Spanish regime. For various given reasons these mines have been abandoned and are today in such a condition that it would require a considerable expenditure of money to put them in working shape



OLD PUDDLING MILL USED TO HANDLE DIRT FROM DREDGE ON OLD PARACALE WORKINGS.

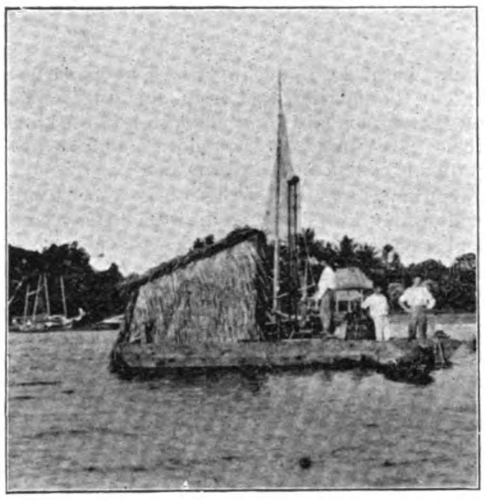
The most interesting and, probably most important of the recent discoveries of gold, was made in the Suyoc region of Southern Lepanto where the Igorots have been working and washing gold ores by the most primitive methods for a hundred years or more. Many years ago they were drowned out of their richest diggings, which, on account of the topography of the country, they could not work by their usual booming method. By means of a drainage tunnel an American prospector recently removed the water from one of these flooded workings and sure enough found the rich ore which tradition reported to be there. In association with the free gold there was observed a silvery white mineral which has since been identified as the mineral calaverite the first authentic report of the occurrence of telluride of gold in the Philippines. No report as to the extent of the deposit or the average assay value of the ore has yet been made.

From the placer deposits of the Philippines no great amount of bullion was produced last year. One dredge has but recently arrived at its real working field, having been engaged heretofore in laboriously dredging its way through comparatively poor and more or less barren ground. A New Zealand syndicate imported a gold dredge last year which has since been put together and floated in the Paracale river. Another dredge, which is now lying idle in Masbate, may be transferred to the Camarines in the near future to assist in the exploitation of this rich field.

In Nueva Ecija, ditches and flumes have been constructed and everything is prepared for a profitable sluicing campaign during the coming rainy season, whereas in the placer fields of Northern Surigao, while considerable prospecting has been done during the past year, no extensive mining operations have yet begun.

COPPER

With the exception of the small amount of copper which was formerly smelted by the Igorots for use in their clandestine manufacture of "sipings", scarcely a dollar's worth of copper has been produced in these islands since American occupation. Nevertheless this metal is readily conceded to rank next to gold in importance as a natural asset of the Philippines. It holds this position both on account of its past record as well as its widespread occurrence throughout the islands, being a frequent associate of gold in the ores. The non-production of copper of late years must necessarily be attributed to the absence of smelters in the islands, and to the difficulties of transportation from the mountain regions where the ore has been found, to the nearest port from which the product could be shipped to foreign smelters. With the investment of a moderate amount of capital these difficulties could be overcome, either by the erection of a furnace near the mines or the improvement of transportation facilities. The Mancayan copper mines, which are the most important and best known copper deposits in the Philippines, have lately come under the control of a local syndicate composed of American and English capitalists. This company has applied for a franchise to build a railroad from Mancayan to Bangar, a town on the western coast of Luzon. If this franchise is granted and the road built, a most important step towards the upbuilding of the mineral industry of the Philippines will have been taken, for not only is such a road of prime importance to the interests of the copper company but all of the gold mines of Suyoc and Northern Benguet may be benefited by it.



MAKING BORING TESTS ON PLACER GROUND IN MALAGUIT RIVER.

From Eastern Pangasinan have recently come very promising looking specimens of the carbonate ores, but as to the extent of the deposits no authentic reports have yet been received. Similar specimens, but no more data, have been received from Cagayan de Mindanao. Large boulders of chalcocite float carrying very appreciable quantities of gold and silver have been encountered in Marinduque, but thus far the mother lode has not been discovered. Native copper occurring as a very thin stringer in igneous rock has been discovered in Masbate, and in the same region rich carbonate ores carrying gold and silver have been found.

SILVER

Native silver has been obtained only from one of the Suyoc mines, a short distance from where the telluride of gold was discovered. Some rich assays of this ore have been made As an associate of gold it is found in many ores, but in most of them only in inappreciable quantities. With lead it has been determined in the argentiferous galena of Marinduque and Cebu, running over 11 ozs. per ton in the former, while in the latter the proportion is unknown, although it is reported to be high.

LEAD

No development work was performed on any of the lead deposits of the Philippines during the last year. The outcrops in Marinduque and Cebu were visited by representatives of the Mining Division of the Bureau of Science but the lack of development work made it impossible to formulate a conclusive report upon the probable importance of these deposits. A few of the gold ores of the islands contain a sufficiently high percentage of galena to make it a factor in the estimation of the smelting cost. Large pieces of galena float were found in conjunction with the chalcocite float mentioned above, but as already stated, the parent lode of these boulders has not yet been discovered. In Cebu the galena occurs as a "stockwork" in an andesite flow.

IRON

No new developments have taken place in the iron industry of the Philippines during the last year. In the Angat region an improvement in the conditions was caused by the termination of the legal disputes, which had been causing more or less molestation to the operators for the last four or five years. An increased economy and possibly output may follow as a result of this settlement, but no new discoveries or modifications of the methods employed are reported. The new wagon road being built between San Miguel de Mayumo and Sibul may prove an impetus to the iron smelters of that district, as it will permit a greater economy in the cost of transportation of their product from the mines to the railroad, which has always been one of their largest expenses. Iron ore has been discovered in Marinduque but under conditions which makes it unlikely that an iron industry will spring up there within the near future.

TIN

Considerable stir was caused some months ago by the reported discovery of tin ore in Mindanao. As such a discovery had long been hoped for, the report gained considerable credence at first. A brief investigation however, proved the reports to be false. It was discovered that the specimens used to beguile the public had been imported from Australia. No authenticated discovery of tin has up to this time been made in the Philippine Islands.

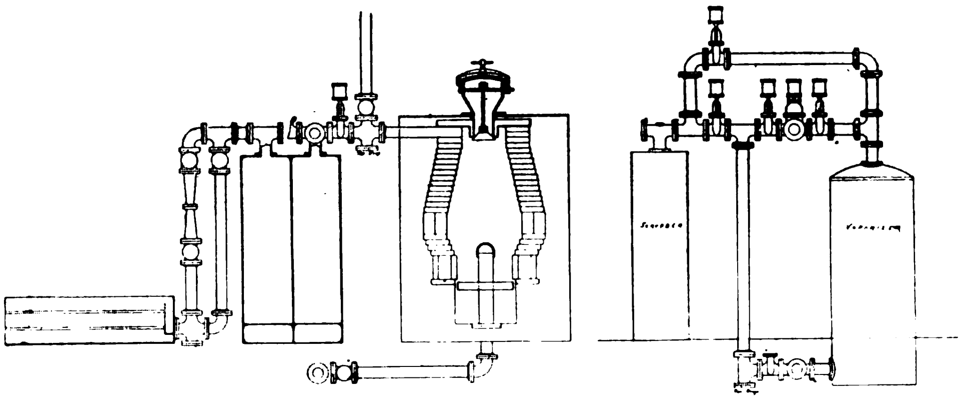
VALVES AND SLUICE GATES FOR MANILA WATER SUPPLY

Attentiou is directed to the advertisement of the Municipal Board of the City of Manila, inviting bids for the supplying of valves and sluice gates for the new gravity water supply, which appears in another column in this issue of THE FAR EASTERN REVIEW.

COAL IN CEBU

By W. D. SMITH (*)

Never before, in all probability, has the outlook for a healthy colliery industry appeared brighter in these Islands. Two of the old camps left in such a sad way largely through the vandalism of insurrectos, are being rehabilitated while explorations are in progress in a third and entirely new field. And in the meantime a thousand or more laborers are rushing to completion across hill and paddy and river the railroad which will bring this coal to the shipsides.



SECTION OF PLAN OF BUREAU OF SCIENCE GAS PRODUCER.

Metal mines of course help develop the country; but we believe we do not exaggerate when we say that when these Islands produce their own coal a new and distinct era will be inaugurated.

At present there are three parties in the field investigating every possible feature of the coal A New York syndicate has two experts, one a mining man and geologist who in former years has been identified with the coal mining industry of Japan, the other a young engineer who has had experience in West Virginia and Kentucky coal fields. These two men and their party are investigating a region in the vicinity of Mt. Mangilao, about six miles due west of the pueblo of Carmen. The second party is now working on both the old properties: Camansi, five miles west of Danao, on the river of the same name, and Licos, about two miles south of the Camansi fields. This party represents a syndicate of prominent New York and Manila men. The third party is the government party, consisting of one geologist and one mining engineer and their assistants. Their survey of approximately forty square miles of territory has just been completed. This survey is based upon a topographic map (transit and stadia) made about a year ago by two topographers from the Division of Mines, Bureau of Science, on a scale of 2,000 feet to the inch and with a contour interval of 50 feet. This map has been of immeasurable value not only to the government surveying party, to whom it is practically indispensable, but also to the private corporations who are preparing to develop the mines, as well as to other private individuals who have located claims but are not yet prepared to develop them.

The work being carried on by the two private parties consists largely of development work, opening up the coal beds, shafting and drifting to determine extent, continuity, etc., and thorough sampling.

In the two older properties already referred to much work is being done opening up old galleries and running new drifts.

From all these fields large samples of three to four tons each will be taken for a special grate test to be carried out at the Bureau of Science.

The work being carried on by the government party consists largely in geological investigation, i. e., in mapping all the formations, coal measures, limestone capping, igneous rocks, basal flaws and intrusives, their surface extent, boundaries, and from dips and strikes on the surface and from underground workings their positions and boundaries underneath, probable course of coal seams, etc.

In the prosecution of this work every stream and nearly every arroyo has been traversed, and every hill top ascended. In this work, the traversing of streams and arroyos has been the most productive of results, as it is in those places that one finds the best outcrops and sections of the beds. The two greatest obstacles to the work in this field are the excessive growth of "cogon and ticbao" and the great accumulation of weathered material and talus which nearly everywhere completely conceals the formations below.

At this time it might be well to state some of the general features brought out by such a survey of this field.

The district is one in which the geology is quite disturbed, but not in excess, it is believed, of other coal bearing areas of the Archipelago. It certainly has some features possessing advantages over the others of the island of Cebu, where coal can be found from one end to the other.

The three fields being developed at present are rather limited, but amply sufficient for considerable coal production.

The coal seams are rather highly inclined, from 30° to 90°, which will necessitate some system as the "Battery" or some similar method being employed in mining.

Both the roof and floor are weak, so that great care will have to be taken in the timbering. There will also be some considerable expense in obtaining suitable timber and preserving it when placed in the workings. Forepoling will be necessary.

There is evidence of considerable minor faulting, but probably none that will seriously affect mining operations.

There are probably five seams that can be counted on, at least two of which are over ten feet thick.

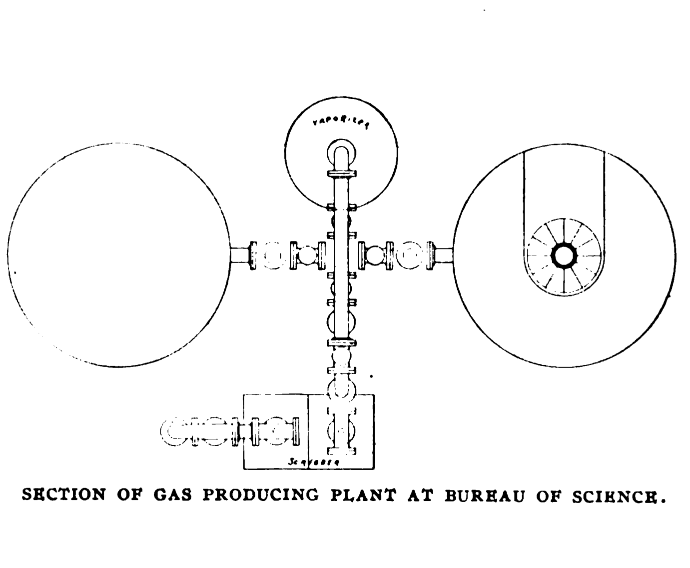
Transportation is one of the most serious items and it seems likely that some such schemes as inclined planes or overhead cableways will have to be resorted to in parts of the district.

At the old Licos workings, where formerly there existed over 300 meters of drifts, about 100 tons of coal, taken from the "Esperanza," "Ramoncita," and "Enrique Abella" galleries have been on the dump for three or four years. In this time the coal has not taken fire nor has it "air slacked" very greatly, which bodes good for its handling and storage.

The coal throughout the district is remarkably free from dirt, clay partings and "bone" and is quite low in sulphur.

We believe that this coal will ultimately find its greatest utility as a gas producer and with that in view it should be mentioned that Messrs. Gilkerson and Cox of the Bureau of Science are devoting much of their time experimenting on this problem and hope at no distant date to make a practical demonstration in this direction.

In the course of the geological survey of the region a number of igneous formations, both deep seated and extrusive, have been found, but their exact relations to the coal will have to be worked out more slowly and will appear on the final map. It is not believed that they will seriously affect mining operations save in a few places.

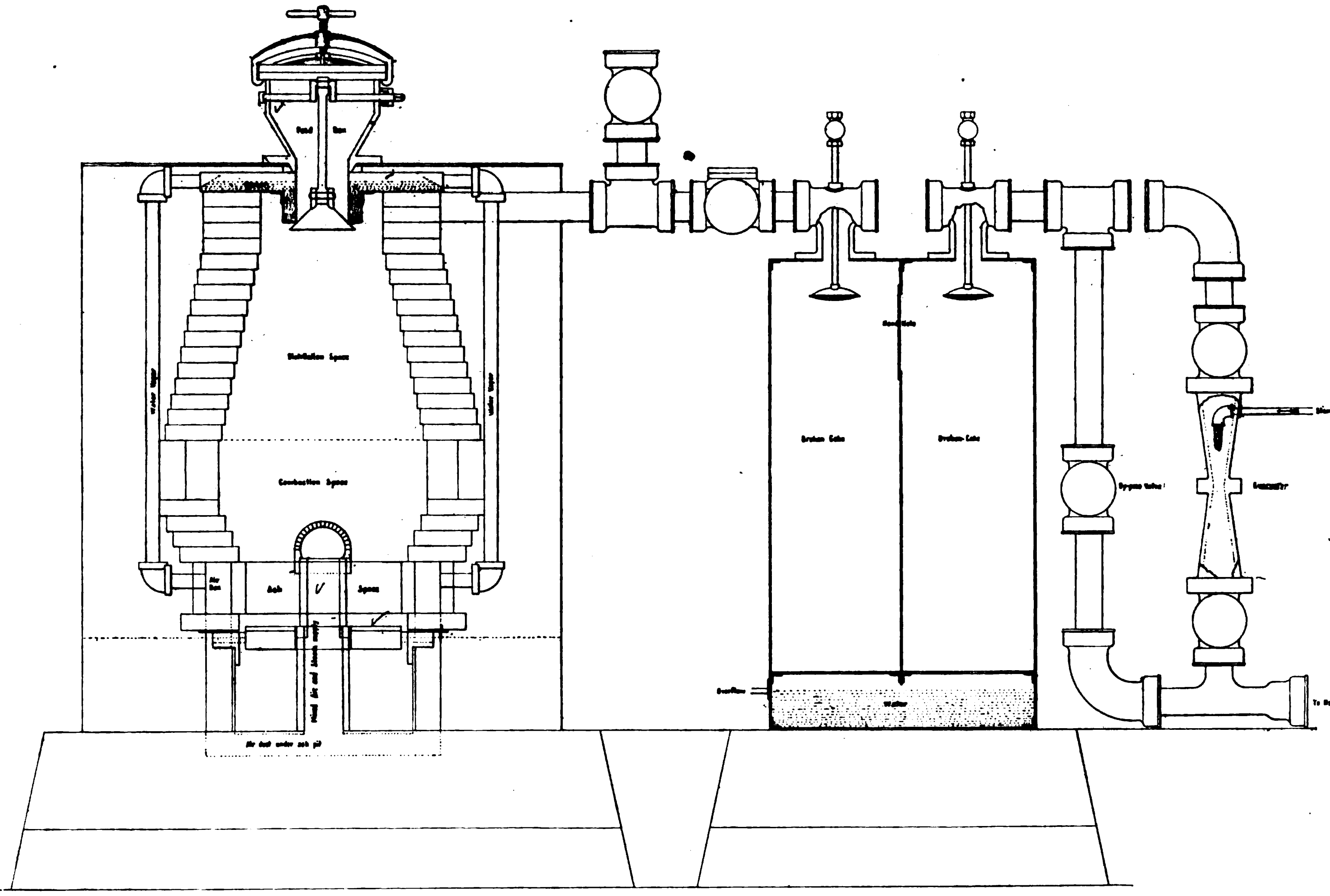


SECTION OF GAS PRODUCING PLANT AT BUREAU OF SCIENCE.

(*) Acting Chief Division of Mines.

PRODUCER GAS PLANT FOR THE BUREAU OF SCIENCE

The Bureau of Science is preparing at some expense to make a complete, practical test of Philippine coal for the utilizing of the gases for commercial purposes. For this purpose Mr. Gilkerson, mechanical engineer at the Bureau, and Dr. Cox of the division of chemistry have prepared designs for an apparatus to be installed at an early date and the result of their experiments will be awaited with great interest. In connection with this project the following descriptive article accompanied by drawings has been furnished the FAR EASTERN REVIEW through the courtesy of the Bureau of Science:



PRODUCER GAS PLANT FOR THE BUREAU OF SCIENCE, MANILA, P. I., DESIGNED BY J. A. GILKERSON, M. E., CHIEF ENGINEER.

"The construction of two gas-producers will enable the Bureau to produce water-gas for Laboratory purposes as well as producer-gas for fuel, to be used under the boilers.

"In the design shown, which is somewhat on the lines of the Loomis-Pettibone system and is designed to be constructed of reinforced concrete about a lining of fire-brick which may be easily gotten at for renewal and repairs.

"The plant consists of two generators, a scrubber and a small steam boiler, with necessary piping and valves to connect with the present gas holders, all valves to be operated by hydraulic switch board on the charging floor of the building containing the apparatus.

"The building to contain this apparatus need be of the simplest construction as protection from the weather and preferably fireproof. Ground floor of earth or cement, charging floor of iron plates, and roof of corrugated iron.

"The gas plant to be near to but separate from the coal house at present used in connection with power plant and will cover approximately 16'×28' ground space.

"In the construction of the producer units the use of reinforced concrete is recommended in preference to iron plate, as a fewer number of fire brick would be required, also giving better insulation, which is important in gas producers.

"The Bureau of Science has on hand an iron tank of suitable size which can be cheaply converted into a gas-scrubber, and also a small upright boiler now used as an auxiliary for pumping purposes; this is the boiler shown in the drawings, but if not desirable to use this one, another of near the same size may be substituted.

"Another and important improvement over the Loomis-Pettibone apparatus is that by the system of by-pass valves, the gas generated in either unit may be passed through the other from either above or below. This is an advantage as recourse is in this manner had to the hottest part of the second fuel bed which cracks a greater amount of the solid carbon which would otherwise condense as soot and tar.

"In the design of this gas-producing plant there are few parts which may not be purchased in the open market or through Manila merchants, and these special parts can be made in local foundries.

"As regards patent infringement, Engineering News, Vol. XXIV, p. 317, 1890, has a "Discussion of Fuel Gas," giving illustrations of the Loomis system.

"It will be possible to make a large saving by using the low grade Philippine coals in a gas-producer which cannot be used to advantage by being burned directly for steam purposes. Also, the producers at present in use at the Bureau of Science, with the extra parts now on hand, will not, without extraordinary outlay, last another year, and even in case they were renewed from time to time the consumption of coal required to make gas from oils would furnish practically the same amount of gas if converted direct with proper apparatus."

The following is from "PRODUCER GAS AND GAS PRODUCERS," by Wyer, N. Y., 1906:

"There are only two classes of plants where the use of producer gas for firing steam boilers may be justified, in the light of present-day gas engine economy:

"First in plants that require steam or hot water in the process of manufacture, as the soap and paper industries.

"Second, in existing steam plants where the change to gas power cannot be made, and yet where it is desirable to eliminate the smoke nuisance.

"Producer gas will give better results than direct firing in either of the cases named, but in new plants for power generation it should be used directly in the gas engine, and thus eliminate the boiler entirely.

"In general, no economy of fuel will result by first gasifying solid fuel in a gas producer and then burning the resulting gas under a steam boiler. The advantages to be derived from such an arrangement usually lie in other directions, and are given in detail.

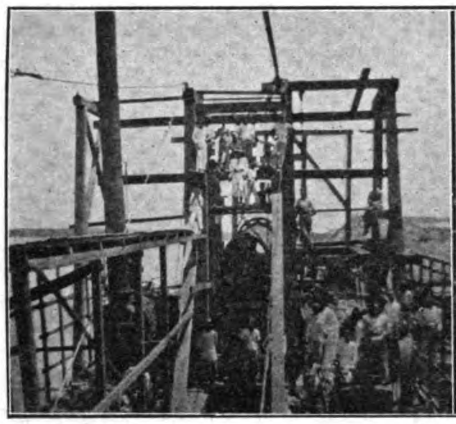
ADVANTAGES:

"1. With gas, complete combustion may be secured with practically no more than the theoretical amount of air.

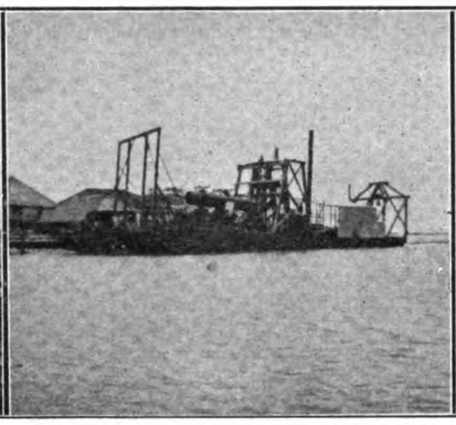
"2. It is much easier to maintain a maximum economy than with solid fuel.

"3. Personal feelings or indifference of the firemen do not affect the operation of the boiler, and steaming is much more regular.

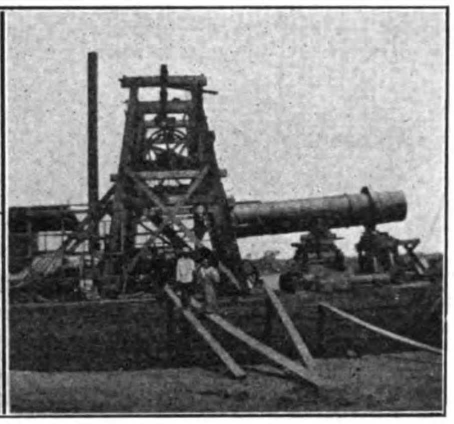
HISTORY OF PLACER MINING IN THE CAMARINES



GETTING READY FOR THE DIGGING LADDER.



BROADSIDE VIEW OF THE PARACALE "DIGGER".



MOUNTING THE BIG REVOLVING SCREEN.

Whatever may be the respective merits of the different districts of the Philippine Islands as to the quality and quantity of valuable mineral deposits, the supremacy of Camarines Norte as a rich field for historical research in mining lore can hardly be disputed.

There are abundant proofs at hand that both its lodes and its placer deposits have yielded profitable returns for several centuries. Ever since the Argonauts set out upon the search for the Golden Fleece there has been a glamour about gold-hunting that lends itself readily to exaggerated speech in dwelling upon the glories of this, that, or the other Eldorado. Due allowance must be made at all times in dealing with the tales of prospectors who see through rose-coloured spectacles. Be this as it may there is abundant material for speculation and comment to be found in the mining districts of Paracale and Mambulao, lying on the North-east coast of the sub-province of Camarines Norte. Here, centuries ago, the natives were "gophering" out with their simple tools the hearts of the free gold veins and washing out the alluvial deposits from the streams with their wooden dishes (*pabirics*) with a skill not excelled anywhere in the world.

Mr. Richard von Drasche, a German geologist who has done some field work in the Islands, and who has published important papers upon Philippine geology, states that at the time of his visit to Mambulao and Paracale there were over 700 natives working the placer deposits for gold. It was estimated by a Spanish governor of Manila of the seventeenth century that the annual output of gold from Camarines Norte was about $200,000. This seems well within possibility and is an indication of what was yielded to native methods. The natives in no part of the Islands have been able to dredge or sluice, nor have they penetrated more than 50 or 100 feet into the rock at any place.

Before the advent of the Spaniards in these Islands, the gold won found its way into China through the medium of Chinese traders who visited these shores in their junks. This mining section was also a favorite raiding ground for hordes of Moro pirates, attracted thither by the gold. The early Spaniards, finding the richest of the alluvial deposits worked out, "impressed" the native miners and started work on numerous veins. Here again, in most instances, the natives had been ahead of them. With small shafts and drifts they had extracted the payable oxidized ore. Water and the changeable character of the ore, together with the want of pumps, formed always an unsurmountable barrier to further progress. Nevertheless some of these reefs were worked by the Spaniards in a primitive fashion—using "arrastres" for crushing. This device was introduced from Mexico, and consisted of two or more

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"4. Gas-firing of boilers presents an adequate economical and practical solution for the smoke nuisance. The entire prevention of smoke is decidedly better than attempts to 'consume' it. To prevent the formation of smoke it is imperative that the combustion be practically complete before the gases impinge on the cold surfaces of the boiler; thus the deposition or condensation of unburned particles of carbon is prevented.

"5. With gaseous fuel, the life of the boiler is much longer, due to the elimination of the excessive strains produced by alternate heating and cooling caused by hand firing.

"6. Less labor is required, including the operation of the producers, since they may be charged with fuel much more easily than a steam boiler.

"Results given by Blauvelt (Cassier's for December 1894, p. 123) on the application of producer-gas to return tubular boilers 'resulted in the prevention of all smoke and an increase in the evaporation capacity of the boilers by over 12%, as compared with the results of the same coal burned on the grate at the same time there was a saving of about 15% in the amount of fuel used."

It is believed that the coal mining industry of the Philippine Islands as yet undeveloped may find an impetus if the product is found to be more economical by utilizing the coal gases in producer-gas engines. So far only a chemical test of the coal has been made in order to establish the value of the Philippine coal as thus utilized and theoretically there is every reason to believe that it can be used successfully and economically compared with the prices paid for imported coal at the present time. However no commercial test has yet been made and until the Bureau of Science completes its work in this direction judgment is suspended. Dr. Alvin J. Cox of the chemical laboratory Bureau of Science, in an interesting paper on "Philippine Coals and their Gas-producing Power," gives the following table and comment on the result of his experiments:

Name of gas.	Actual yield of gas per kilo of coal. In liters.	Actual yield of gas per kilo of coal. In cubic feet.	Actual yield of gas per kilo of combustible. In liters.	Actual yield of gas per kilo of combustible. In cubic feet.	Actual yield of gas per kilo of volatile combustible. In liters.	Actual yield of gas per kilo of volatile combustible. In cubic feet.	Calories per liter.
Batan coal.	365 955	12.922	452.255	15 97	854 380	30.89	3.125
Cebu coal..	305.020	10.770	359.100	12.67	697.986	24.65	4,295
Polillo coal	320.648	11,322	364.245	12.88	782.260	27.60	5,254
Negros coal	267.570	9.448	359.350	12.69	826.088	29.14	4,527
Australian Zco.......	302.305	10.674	344.025	12.15	758 227	26.77	5,135
amaboanga coal......	227 845	8.015	264.820	9.39	645.270	22.22	5,616

The regions represented by this investigation include the largest coal fields of the Islands and show wide distribution. Since the character of the coal in the Philippines and the facts of the gas tests are so nearly the same, conclusions may also be drawn from these results regarding the other regions. Furthermore, it is probable that equally good or even better results could be obtained from a study of the other coals.

An investigation of the by-products of the distillation of these coals has not been made, but it can be stated that the yield of tar is comparatively small.

The producer-gas plant depends not only on the production and utilization of the ordinary coal gas but also on the partial combustion of the fixed carbon which, in an ordinary gas plant, is left behind. Carbon monoxide, the product of the partial combustion, is of comparatively low calorific value, much lower than that of the gas produced from the volatile combustible matter. This explains the results of the work of the United States Geological Survey which show, when viewed from the usual steaming standpoint, that the quality of the producer gas "improves as one descends in the scale of quality of a coal, the best results being obtained from brown lignite." The same tendency is noted in the gas-producing power of native coals, as shown below:

This fact is of importance to the Philippines as it suggests a method for the utilization of the low-grade fuels. The disposition of the outcrop coal, which must be mined in opening up the works, and the use of the slack is the question now to be considered and the problem which we must solve. My investigations have been made with outcrop coals of a low fuel ratio, with the particular object of determining their utility. The above results show that the coals tested have satisfactory gas-producing power and could probably be used in a producer plant with excellent results.

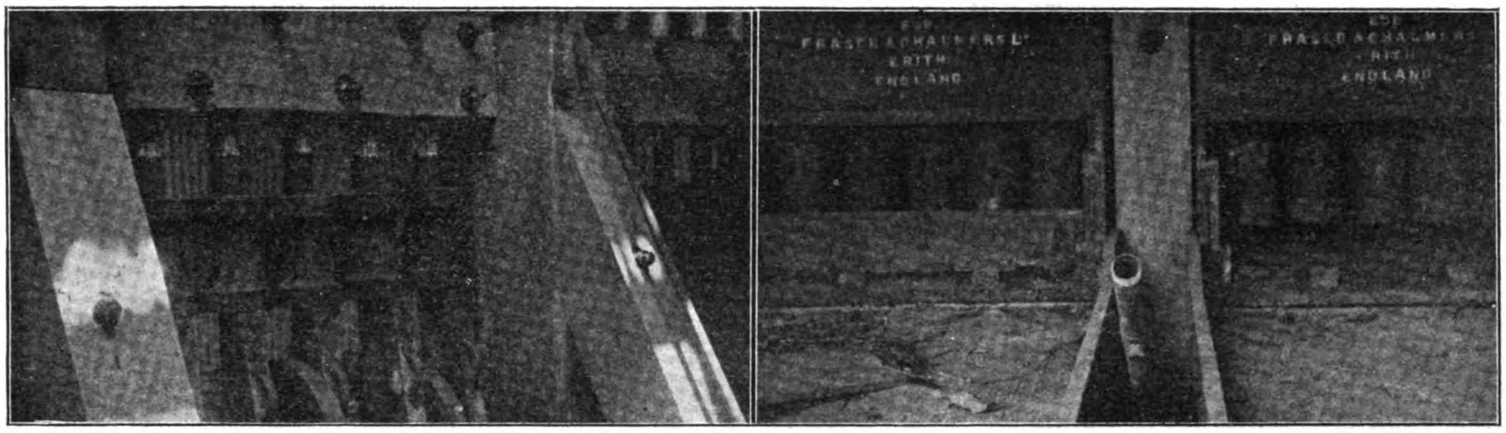
Physically, the Phlippine coals are ideal to handle in a producer furnace. They do not swell, they burn steadily, form no clinkers, and the ash would easily be removed automatically. Since the quantity of ash in a producer plant is of no material consequence, it seems probable that dirty coals could be used in this way to great advantage. It is also probable that the outcrop coals used in a producer-gas plant may become as valuable as the best grades of coal used in a steam plant.

With a satisfactory scheme for the utilization of the upper and poorer grade of coal, the mines can successfully be operated and the deeper coal can be used for steaming where a producer gas plant is impracticable. For the production of power, the utilization of our low-grade and outcrop coals for producer gas seems much more promising than any other scheme which has yet been devised for their use.

heavy drags of stone slowly pulled around on a stone bed, the ore being ground under them. The motive power was a bullock and the crushing capacity of such a machine was from one to three tons per day. By this method considerable gold was taken out, which formed the foundations of the fortunes of numerous Spanish and Mestizo families.

Back in those days, according to accounts more or less reliable, the town of Mambulao, which lies on a sheltered deep-water harbor, was the second city of the Archipelago with something like 60,000 inhabitants. Today the entire municipality numbers perhaps 1500 souls.

One of the evidences of the town's former greatness is to be found in the old "Moro fort" (for protection against those venturesome Mohammedan pirates of the South) the ruins of which are still to be seen on the outskirts of the settlement.



OLD ENGLISH MILL REMAINING ON THE CAMARINES WORKINGS.

Prior to 1894 Camarines Norte was the scene of great activity in mining among the natives, but in that year the Spanish government prohibited the industry to the natives and it was this prohibition which accounts for the present quiescent condition, now just about to be broken up.

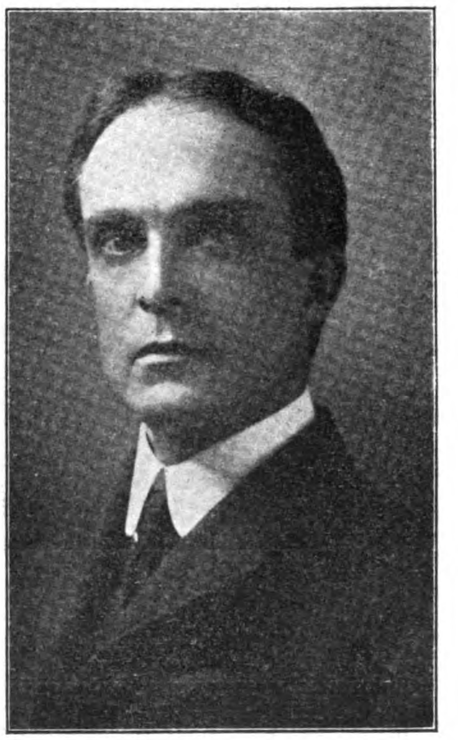
The Nestor of mining in this district is undoubtedly Pegerto L. Somoza, a Spaniard who has resided in Camarines Norte for more than a quarter of a century. With a zeal that never flags and the enthusiasm of a schoolboy, "Don Pegerto," as he is familiarly known, has labored unceasingly for the promotion of the interests in which his faith has never faltered, notwithstanding continued years of reverses. He has, during both Spanish and American sovereignty, been a contributor to the press of articles upon the resources of his beloved adopted country. His mineral collections have been the admiration and envy of all miners and he was largely responsible for an exhibit of specimens from the Camarines, by no means to be despised, which was displayed at the St. Louis Exposition.

The following clipping from an article published several years ago in a Spanish newspaper of Manila as a contribution from Sr. Somoza gives a good insight into the flush days in Camarines Norte before "the prohibition."

"In order to give a greater number of details which may be of some usefulness to future development enterprises, we will cite some analyses and tests made, dividing them into two periods; one, of the clandestine mining which the natives used to carry on in Camarines Norte up to the year '94, the date of the prohibition, and the other, for eight years past, the European system, with more skill and capital, and therefore more scientific analyses.

"Of the first, or the mining of the native with his primitive system, we know that from the mine located on the mountain called Saitaas nang Bayang they extracted a great deal of rich mineral during a considerable space of time, the activity which that bonanza produced being so great that in the early morning the greater part of the people of the pueblo gathered beside the mouth of the mine. The women carried their different native foods for the breakfast of the miners, asking in payment for this food a piece of quartz or a handful of grit from that gouged from the heart of the vein, particularly rich. Generally they were *dalaguitas* (maidens), those who used to carry their little movable tienda of food, which the young men saw with great pleasure, and reciprocated gallantly, paying the girls with a rich fragment of quartz from which some of them, grinding it at once by hand, used to extract a half peso, a peso and at times more. We have seen one fragment of two pounds weight paid in exchange for a breakfast by a youth to a graceful maiden, which, being worked out, gave an ounce and a half. Take into account that in this class of clandestine mining generally all the miners were partners; for this reason and being prosperous they got rid of the mineral. At the side of this mine there were a number of mills *(arrastres)* moved by carabaos in order to grind the mineral. At the side of this *arrastre* they used to lead down the supply of water necessary to complete the second part of the working, which, with their *pabiric* and finally the *dulanga* they carried to a finish, cleaning up the gold of the day with this latter apparatus in order to divide it among them, sometimes in dust, and other times melted down.

"In other mines they divided the mineral taken out by means of baskets. The unit which was used for counting it is the *cazon*. Its equivalent is, on the average, one-tenth to perhaps one-eighth of a ton. The mineral of this mine used to give from two ounces—the poorest—up to ten, the richest. The depths at which they extracted this mineral were from 14 to 15 *varas* (a vara is 2.78 feet).



JUDGE F. B. INGERSOLL, OF MANILA, WHO IS INTERESTED IN THE PARACALE MINES.

"From another mine which they used to work on Mount Bulalacao they extracted extremely rich mineral, whose average, according to the samples we have seen assayed, was five ounces to the ton at a very small depth.

"From another which they used to work on Mount Togos we saw assays which gave seven ounces to the ton.

"From other mines which they worked in the mountains of Casalogan we witnessed assays (and we still preserve some mineral from there) which gave the amount of twenty-four ounces to the ton; this mineral was extracted at a depth of forty-two feet.

"From the one of at Manauc they took out a proportion so enormous that they sold a basket of mineral, which would weigh not more than three arrobas, for $500 silver, before grinding it and just as they extracted it, a class of sales which was of ancient custom among those particular miners.

"We have seen ground a fragment of quartz from one of these mines of two pounds weight and it gave four ounces of gold. Take into account that the native generally did not work more than the heart of the vein, despising the rest.

"Some reader will argue: If there is so much gold why are the natives so poor? To this reader I am going to relate an anecdote of what occurred to me in '94. I was at the side of one of the best experts of those pueblos and he was relating to me that of the rich mineral which he was cleaning up at that time there was extracted from his mine, discovered by his father, from a single shaft of some hundred feet in depth, more than $14,000 gold. Lamenting to me that he had to work as a day laborer after having taken out so much gold, I asked him: 'But, man, thou who hast taken out so much gold from the mine which thy father discovered, why dost thou not guard it and keep thyself in thy old age from having to work at day labor?' Answer—'Oh, señor! It is true, but I had the consolation of playing up to $300 on a rooster.' The reader can deduce the consequence; they seem inseparable, mining and the vices.

"Of the second period, that is of the Europeans, we have witnessed analyses made by the engineer Mr. Simpson, whose result was from three to eight and nine ounces to the ton.

"There were other assays in the Guinobatan establishment which gave two and four ounces in two classes of mineral.

"Another assay made by the engineer Mr. Williams gave 9½ ounces to the ton.

"And we have in view another analysis of the last Spanish municipal laboratory which gave as a result the enormous figure of 5 grammes 422 miligrammes to the kilogram of mineral.

"The gold in Paracale and Mambulao is found in pockets more or less great, and disseminated in veins of crystallized quartz or in mass, generally accompanied by iron pyrites, and some-

times copper, blend, variegated copper, galena, and even with beautiful orange-colored crystals of lead chromate."

During the early '90's European mining men and foreign capital began to be attracted to the Camarines for investment. Several companies acquired concessions in Paracale and Mambulao, the most notable among them being the Philippines Mineral Syndicate, Limited, a British concern which had, however, a considerable number of shareholders residing in the Islands. It is common report that this company spent £60,000 on its quartz properties, and this can well be believed from the evidences still visible to the eye in the shape of ruined machinery and equipment scattered over the country.

Operations were carried forward on a large scale. Several different mines were opened up and expensive machinery imported from England. There seems to have been a most extraordinary combination of bad management and ill-luck for a period of several years, during which time the Syndicate managed to sink a very large sum of money.

Finally, at a time when the principal development work on the properties was well along and machinery was installed ready to stamp out golden returns, the Philippine insurrection of 1896 broke out. The English engineers in charge fled for their lives and machinery and mine workings alike fell into disuse and decay.

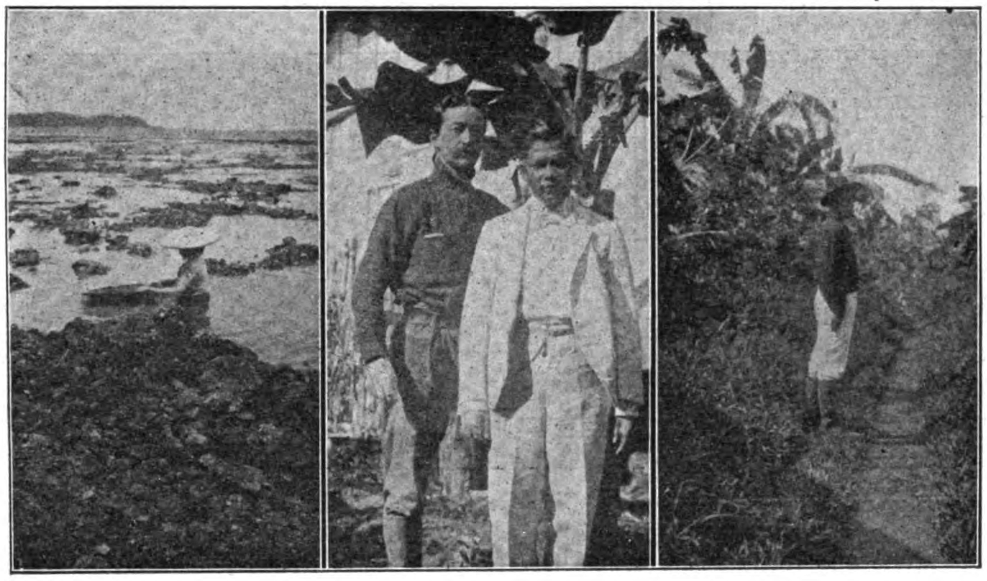
On Longos Point overlooking the Pacific Ocean, a short distance from the town of Paracale, a Fraser & Chalmers ten-stamp mill had been set up and today the forlorn remains of a full-fledged mining plant can be seen—the iron roof of the mill house fallen in; the timbers dropping apart; the boiler and engine scaling to pieces from exposure to tropical climate. The copper plates of the mill and the iron rods set in the timbers have long ago disappeared—carried off by vandals to reinforce and sheath their boats

Scarcely a native in the Camarines but knows of the famous Tumbaga mines in the Mambulao district. Here may be seen the rust-covered iron of a Huntington mill, engine and boiler, pumping and hoisting apparatus—all of the most expensive make and all unfitted for use from long exposure to the elements.

Prior to "the prohibition" of 1894 the Tumbaga mines were worked by the natives and on every hand are to be heard stories of their rich stores of metal.

Not long ago the writer was talking of mining in the Camarines with an aged Filipino priest—a patriarch of three score years and ten who has spent all of his life in that region. After discussing various properties the old man observed with a sigh: "Ah, Señor, but Tumbaga was the king of them all. When I was a young man I used to work all day long with my duties at the church and then I went to Tumbaga and worked all night long in the mines.."

But it was not alone from the lodes of Mambulao and Paracale that the miners of the "European period" of the early '90's were preparing to rob Mother Earth of her treasures. The general impression now exists that prior to the placing of a Risdon dredge on the Guinobatan river in Masbate in 1905 by an American corporation gold-dredging was unknown in the Philippines. Not so. In 1896 a company of Manila Spaniards represented by Sr. Somoza constructed a small bucket dredge and put it to work in the golden sands of the Paracale river.



NATIVES WORKING GOLD IN PARACALE RIVER—MANAGER MACDONALD AND PRESIDENTE ECCO

The dredge would be considered a Lilliputian today. Its construction was crude and it had only four or five horse power. Its capacity could not have been over fifteen or twenty cubic yards a day. It did not even handle its own dirt. This was dumped into *bancas* and conveyed to a puddling mill which still stands on the south bank of the river opposite the town of Paracale. Notwithstandng these drawbacks the dredge bid fair to reap a fortune for its owners, but for the fact that its career was nipped in the bud by the insurrection which practically wiped out all mining operations in the Camarines.

Today the dredge stands rotting on an island in the river, a ghastly monument to the untiring search for gold which has lured the Spaniard to every quarter of the globe.

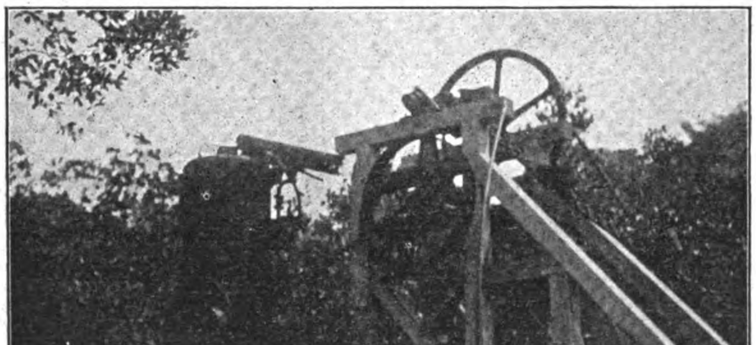
For several years following the outbreak in '96 mining in the Camarines was dead. War followed insurrection and it was not until after the passage of the Act of Congress of July 1, 1902, embodying the new mining law for the Philippines that there were any signs of a revival of interest.

The local representatives of the old Philippines Mineral Syndicate began to take steps for saving what they could from the wreck. A German Syndicate which had a large Spanish concession known as "La Candelaria" began to bestir itself. American prospectors drifted into the Camarines and made locations.

At first there were symptoms of trouble due to a conflict of interests as between rights acquired under the old Spanish law and those secured under the new American law. Sr. Somoza was an active figure in smoothing out these differences. So was Francisco Eco, a good type of the intelligent and progressive Tagalog of the provinces, formerly *presidente* of Paracale and now hemp-buyer in that section for the well-known firm of Stevenson & Co.

Mr. H. D. McCaskey, formerly chief of the Mining Bureau, in his last Annual Report has the following to say regarding mining conditions in the Camarines.

"In Camarines Province the Spanish concessions upon the extensive gold deposits in the districts of Paracale and Mambulao have been largely relocated by American mining men under present laws and without friction with the former concessionaires, and some work has been done in the reopening of abandoned shafts and in preparation for future systematic development. The important ore bodies of this district are reported to be contact deposits between crystalline schists and diorite, and to be well defined so far as uncovered. The contact is reported as traced for twenty miles, and along this all mining in this field has been done. Two vein systems intersect each other through the district approximately at right angles, the enrichment at some intersections having been reported upon as developing exceedingly high values. The strike of the most marked vein outcrops varies between 5° to 40° east and the dip is reported to be southeast. The veins are reported to be one to eight feet wide and the vein filling to be quartz. Deep mining will probably involve pumping expenses of no mean consideration, but it is understood that much valuable ore may be taken out before this expensive stage of mining is begun. It is fully believed that the deposits are worth the attention of competent mining engineers, retained by sufficient capital to work these mines; but, in the meantime, a preliminary step will be taken this year in a careful study of this field by the detail of Mr. Eveland, geologist, to the work of a reconnoissance and the preparation of a general report upon the ore bodies themselves, and possibly by the further detail of Mr. Maurice Goodman, field assistant, to a careful survey of the placer fields of the Paracale and Malaguit rivers. Reported assays from this district have averaged $20.92 in gold to the ton for the "San Mauricio," a representative group of claims covering deposits of partially refractory ore, and this for a large amount of systematic sampling reported by five different mining engineers. Assays of the 'Tumbaga,' a free-milling gold-quartz vein upon which a ten-stamp mill will probably be erected in February of next year, have given exceedingly rich returns, but

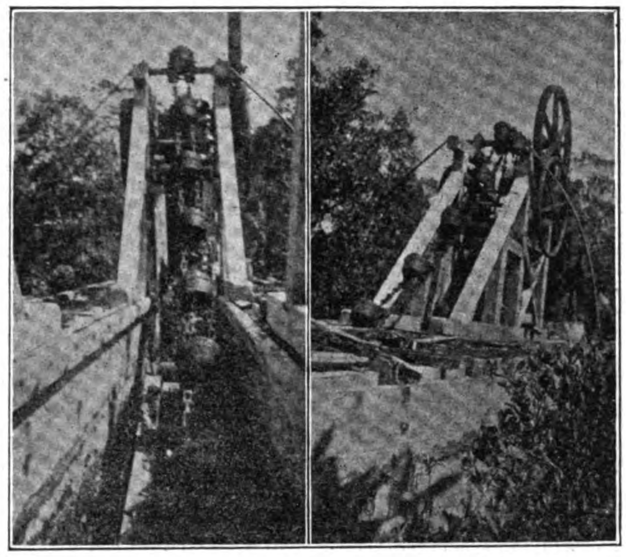


PART OF THE OPERATING MACHINERY OF THE OLD DREDGE AT PARACALE.

as the sampling has been less carefully done upon this vein it would serve no good purpose to quote values here.

"The ores are described as sulphides of iron, copper, lead, and zinc, complex auriferous smelting ores in part and in part suitable for milling and cyanidation or chlorination. The placers have yielded important amounts of gold in the past, some of the nuggets being unusually large.

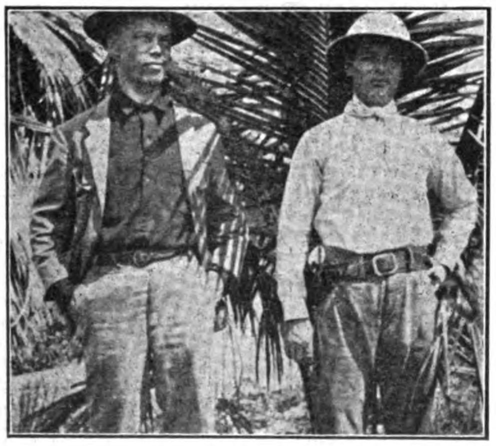
Recently but little has been heard by the general public of mining in the Camarines. A considerable number of Americans and Filipinos have claims there, but they have done but little more than prospect and keep up their assessment work. The need of large capital to take hold has been recognized and persistent although conservative efforts have been made to attract it.



OTHER VIEWS OF THE OLD DREDGER ON THE PARACALE WORKINGS.

While it may be somewhat doubtful whether sufficient rich placer ground remains for panning or sluicing methods, recent samples of gravel from the river beds indicate that dredger work here would pay. The average of nineteen samples of gravel recently taken by Mr. Robert Lienau from the Malaguit River and examined by Mr. H. M. Ickis, field assistant, shows a value of 16 cents to the cubic yard. It is anticipated that, notwithstanding mistakes that may have been made in the rather extensive development of the presumably rich ore deposits of this district in the past, the gold ores of Paracale and Mambulao, together with the placer fields are most decidedly to be reckoned with in future work."

Today the most prominent figure in the mining district of Paracale and Mambulao is A. J. MacDonald, the representative of a considerable number of Americans and Filipinos who have interests there. MacDonald is a typical American pioneer. Schooled in the mining districts of Washington and British Columbia, then a volunteerr soldier in the army which occupied the Philippines, later chief of the secret service of the Customs service and again special Customs agent on hazardous duty among the Moro smugglers of the Southern Islands, his is an interesting career. For the past three years he has lived continuously in Mambulao and Paracale, being at times the only white man there.



H. L. BECKJORD AND S. W. SILDEN WHO ARE INTERESTED IN TAYABAS FIELDS.

The first tangible fruits of this work of promotion is to be seen in an enormous gold-dredge which is now being constructed for use on the Paracale river. After long negotiations the Americans and Filipinos who control this tract of placer ground succeeded in interesting a group of New Zealand capitalists, who about a year and a half ago sent over a mining engineer to test the deposits with boring apparatus. This expert spent about four months on the ground making tests as a result of which the New Zealanders entered into a contract with the owners of the claims to dredge them on shares.

New Zealand is the home of gold dredging, and the fact that some of the leaders in this class of mining are giving such material evidences of their faith in the district speaks volumes for the future of this class of industry in the Camarines. The dredge, which is by far the largest set up in the Islands, has a daily capacity of 2,000 cubic yards. The hull is 113 feet long by 29 ft. 6 inches wide and is 5 feet 6 inches deep at the bow and 8 feet 9 inches at the stern. The dredging ladder is 52 feet long. About 70,000 feet of Oregon pine has been used in the construction of the barge.

Specially constructed sluice boxes, 80 feet long, have been placed on the dredge to save the gold-bearing black sand found in the Paracale river.

The dredging machinery arrived from New Zealand last January and was at once forwarded to Mercedes, Ambos Camarines, where the dredge is being constructed under the supervision of Mr. Joseph Pearson an expert dredge-builder of Dunedin, New Zealand. Mercedes was selected as the site for the construction work by reason of the superior advantages it offers over Paracale in the way of transportation facilities from and mail communication with Manila. After being completed the dredge will be towed from Mercedes for some twenty miles up the coast to the mouth of the Paracale river.

Although the machinery came from New Zealand, all of the lumber for constructing the barge and all the hardware supplies and provisions have been purchased through local dealers in Manila at an outlay of many thousands of dollars. Outside of a few skilled mechanics, experts in this class of construction, only native labor is being used in building the dredge.

The dredge is nearing completion and it is expected that it will be chewing up dirt in the Paracale river not later than the first of next July.

While the dredge for the Paracale river is the first visible result of the consistent promotion work carried on by the claim-owners in the Paracale and Mambulao district, it is prophesied that the present year will see other important enterprises under way not only in placer but in lode mining.

The old "Candelaria' concession formerly held by a German syndicate is now controlled by Dr. J. R. McDill, the well-known surgeon of Manila, and a party of friends. Dr. McDill is now in the United States and among other business to have his attention there it is commonly reported that he will close a deal which will mean the opening up of "Candelaria" on a large scale.

Without discussing technically the richness and extent of the mineral deposits of Mambulao and Paracale, it is apparent even to a novice that the whole country is heavily mineralized. There are showings everywhere. Excepting tin and platinum practically all the better known minerals are found. There are even large deposits of Kaolin and mineral paint.

The geological formations of this district are almost entirely eruptive and consist of a coarse granitoid gneiss, except in a limited section which carries sedimentary limestones. The veins run generally in a North-east and South-west direction.

The whole country is thickly wooded, furnishing an abundant supply of fuel and timber. There is also plenty of water for milling as well as for domestic purposes.

There are no difficulties of transportation, since the most of the properties which are known to be valuable are close to the seacoast. At Mambulao there is a fine deep-water harbor and the Malaguit river is navigable for inter-island steamers of moderate draft up to the settlement of Malaguit, less than a mile distant from the town of Paracale.

TAYABAS OIL FIELDS

The oil fields of Tayabas province, Island of Luzon, are situated in the Bahay river valley, near San Narciso on the Bay of Ragay, or on the extreme end of the Peninsula of Tayabas, and can be reached by taking steamer at Manila for Catanauan, Tayabas, approximately two hundred miles south of Manila, and then by travel overland or preferably in a sailboat to the oil fields—a distance of probably fifty miles.

Quite a good deal of development work has already been done by the several claim holders,

NATHAN O. NOAH, WHO IS INTERESTED IN TAYABAS PETROLEUM.

especially by Messrs. Tilden and McDaniel. Mr. McDaniel has drilled a hole to a depth of 127 feet, over a hundred feet of which has been cased with iron pipe four inches in diameter.

On a recent trip to these oil mines a ten-gallon zinc can was filled with the oil standing in the hole above-mentioned and brought back to Manila for testing purposes The oil in this pipe is simply the seepage from the oil sand, the hole not yet having been drilled deep enough to strike the main reservoir owing to the drilling machinery having broken down. All indications point to a fair quantity of oil in that section of Tayabas province.

Recently Mr. McDaniel made a test of this oil just as it was brought from the oil wells, without any refining process whatever, in the Agricultural bodega of Castle Bros.-Wolf & Sons in Manila. This oil was used as a fuel in a Fairbanks Morse engine, known as the "Jack of All Trades," the test lasting four hours, and furnished splendid power for operating machinery during that time. This statement can be verified by Captain Thomas Leonard, Mr. F. N. Bungey and Mr. N. E. Thompson of the Bodega, who were present during this test. This simply serves to show the possibilities of Tayabas oil, which also contains a large percentage of illuminating oil and has been tested in its natural state by burning it in a small tin lamp without globe or chimney, in an open room, the lamp holding 1½ gills and burned for six hours without refilling.

An analysis of the oil from the Bahay field (the sample being taken from the first oil sand strata at depth of 62 feet) made by the Bureau of Science (the Government Laboratory) in Manila, during April 1906, showing the following report on analysis of crude petroleum—specific gravity of original sample being 30°. fractional distillation.

A 90°-150° C—6% of 49° Bl.
B 150°-300° C—67.5% (B Refractionated)
BI 150°-185°C—20% of 44° Bl.
BII 185°-125° C—28.5% 35° Bl.
BIII 250°-300° C—19% of 27° Bl.
C. Fraction not boiling at 300° C was re-distilled in vacuum, (6 to 8 mm pressure) 170°-300° C—23% of 18° Bl.
D Residue of tar, etc.—3%

(Signed) HERBERT S. WALKER, *Analyst.*

The Bahay oil fields are easily accessible and the best of water transportation is available, which is well sheltered from storms and affords good protection to vessels. A road and pipe line can easily be constructed from the oil mines to the sea coast, a distance of about two and one half miles, the elevation being something like 130 feet, which is amply sufficient for the laying of a gravity pipe line from the oil wells to the coast, very little clearing of brush and trees being necessary.

Oil in large quantities is certain to be found in the Bahay river valley in Tayabas, and will undoubtedly pay good dividends on capital invested in this enterprise, as the Philippines alone furnish a tremendous field for the consumption of oil, both illuminating and for fuel purposes, particularly in furnishing power for operating machinery. Following is a list of some of the holders of oil claims in the Bahay river valley, Tayabas province:—

E. W. McDaniel	H. W. Pickrell
Olney Bondurant	J. C. Muerman
C. G. Clifford	W. W. Weston
John H. Finnegan	Major J. B. Murphy
E. C. Stelton	E. W. Ladd
Geo. K. Armstrong	U. S. Vincent
N. O. Noah	G. W. Parsons
Mills Dean	C. J. Cooke
S. W. Tilden	H. L. Beckjord
E. M. Wilcox	S. S. Brown
J. F. Dresser	William H. Rookey
C. Skattebol	M. Herman
Hardee M. Wyatt	Glenn W. Parks
A. Heise	C. A. Brinkley
Harry Milord	Claud Dobbins
Harry Coleman	Rufus McCrea
T. L. Hartigan	Chas. H. Crooks
M. L. McLain	A. C. Monks

Wm. Mason.

MINERAL DEPOSITS OF ILOCOS NORTE

In the northeasternmost part of Luzon there is a district bounded on the west by the China Sea, on the east by the Caraballo del Norte Range, and on the north by the Formosa Straits, which bids fair in time to become a very rich mineral region, and this district will probably be known not for its gold or copper, though there is undoubtedly some of each of these minerals, but through its non-metallic minerals: asbestos, phosphate, mica; and, in all likelihood, it will yield gem minerals. Ilocos Norte is mountainous over most of its territory. These mountains are very high along its eastern boundary between Cagayan and Ilocos Norte, with considerable foothill country to the west and a coastal plain varying from 1 to 7 miles in width, being a very irregular strip. The Caraballo range trends north and south and, likewise, the minor ranges to the west, with, of course, occasional exceptions here and there, spurs and offshoots, which tend to have an east and west trend, the most notable case being the long black range running eastward from Cape Bojeador. The mountains of that part explored by me are not high, 2,000' being the limit, but the relief is quite pronounced. In reality there is a plateau of this height which extends from Pasuquin northeast to Bangui. This plateau though not over 2,000' high is deeply cut by several rivers, thus giving a pronounced relief to the topography. The principal rivers are the Laoag and the Bacarra, flowing west into the China Sea, and the Bamban northward into Formosa Straits, near Bangui. None of these rivers are navigable for large craft, and the Laoag is the only one large enough even for *Virays.*

Good harbors are scarce on this coast. In the typhoon season it is very dangerous, there being no entirely safe shelter on the whole west coast north of Subig Bay. In all ordinary weather good anchorage may be found in Bangui Bay during the southwest monsoon. In the northeast monsoon the north coast is out of the question. Of the harbors on the west coast there are only three which are used, the Dirique, Currimao and Salamague, the last named the best. All of these are reef-bound and have to be entered with the greatest caution.

The climate of Ilocos Norte is considered very healthy, being much cooler here than in most coast provinces, and its seasons are quite regular. In the time of the northeast monsoon the north coast is very windy and cool. During this season the city of Laoag, capital of the province, is very healthful and pleasant to live in. The word Laoag in the Ilocano dialect means blue skies.

Geologically the province of Ilocos Norte is quite distinct from any other I have been in or of which I have any data. It is distinctly a metamorphic area, and so similar in many ways to areas in the California coast range that anyone familiar with the latter could very easily persuade himself that he was really not in the Philippines at all, but wandering over the hills near Berkeley (Cal.). A simple statement of the formations in the order of their probable position will be sufficient in an article of this kind. From above downward we find the following formations: Raised coral reefs, marl beds, these two belonging to the Pleistocene; calcareous sandstone, coarse-grained sandstone, a brecciated jasper formation, then follows an unconformity, below which are eruptive conglomerates and tuff deposits, granulite dikes; bordering the eruptive conglomerates and the granulite is a belt of schistose rocks; the basal formation of the whole district is a dark, fine grained, in places slightly porphyritic, igneous rock, which for purposes of convenience we shall call a dolerite.

The asbestos deposits occur in the last named formation, the manganese as veins in the eruptive conglomerate formation. In the schistose rocks are found various minor products, namely, micas and talc, which may prove of future value.

It is not to be understood from this enumeration of formations that the whole succession is to be found continuous over the whole area. Indeed, uplift, folding and subsequent degradations have wrought great havoc in the stratigraphic column, and it is only by piecing together bits of information here and there that we have been able to reconstruct a record of the probable past events.

Mineral Resources.—Not until within the last year or two has any systematic prospecting been done in this province and only within the last year has any development work been carried on. And to my knowledge no geologist or mining engineer had ever visited this region previous to this time. It was long known, however, to Señor Lallave, who owns several large estates near Bangui, that mineral fibre existed on his land, though he never fully appreciated the fact. The deposits which are being developed there now and which may prove very valuable assets to the province are as follows:

Asbestos.
Manganese.
Granite—building stone.
Mica and talc.
Felspar and quartz deposits.
Mineral paint—ochre.
Apatite.

Besides these there are remote possibilities of gem minerals being found. There have been found also some poor specimens of opal; also the indications appear good for the discovery of tin.

Asbestos.—As yet no 1st-grade asbestos, or chrysotile, has been found in workable quantities, though there is every reason that such will be obtained after more development work. Owing to an erroneous and entirely misleading quotation purporting to have come from the Bureau of Science and appearing in one of the Manila dailies, and quoted in this paper, inquiries have been coming into us from several European countries. To straighten out the matter I shall quote from my report (at that time confidential), to the Chief of the Division of Mines:

At present I have to say that while there is not one ton of asbestos in sight (I am using this in the sense understood by engineers) in the whole region visited by me, the indications, moreover, seem quite good for getting out in time a fair grade of asbestos and in goodly quantities.

The variety which is being taken out now is the amphibole anthophyllite and tremolite, and is characterized by having its fibres parallel to the walls of the vein. These fibres vary from a fraction of an inch in length to a foot or more. They vary also in color, from a dirty yellow to silky white, and in hardness also. On the Dungan-Dungan Estate, in an estero of the Baruyen River, one finds the nearest approach to the chrysotile asbestos, but there the fibre is irregular, being found in pockets and along shear zones in the serpentine. It is unfortunate that at the time of my visit floods and land slides had almost completely obliterated the work Mr. Burdette had done at this locality.

Indications of asbestos have been found at the following localities:

Baruyen Hill—schist area.
Baruyen Valley.
Dungan-Dungan—serpentine.
Baruyen Valley—very promising.
Caraon River—schist area.
Near Pasuquin.
Dalumat.
Near Pasuquin—schist area.

In the most prominent asbestos regions, as the Thetford, Canada, the serpentine areas have been proved to be the most productive and besides are more easily worked.

Manganese.—Manganese, in the form of the oxide, pyrolusite, often mixed with limonite, has been found in a rather limited area adjacent to the barrio of Nagpartian. We find this in its most typical occurrence. All that I have yet seen comes from an *eruptive conglomerate* mass, which forms prominent black ridges on the north coast and about two miles south of Nagpartian. The manganese had its origin in small veins and pockets between the igneous boulders of the mass, but has since been con-

THE BENGUET CONSOLIDATED MINING CO.

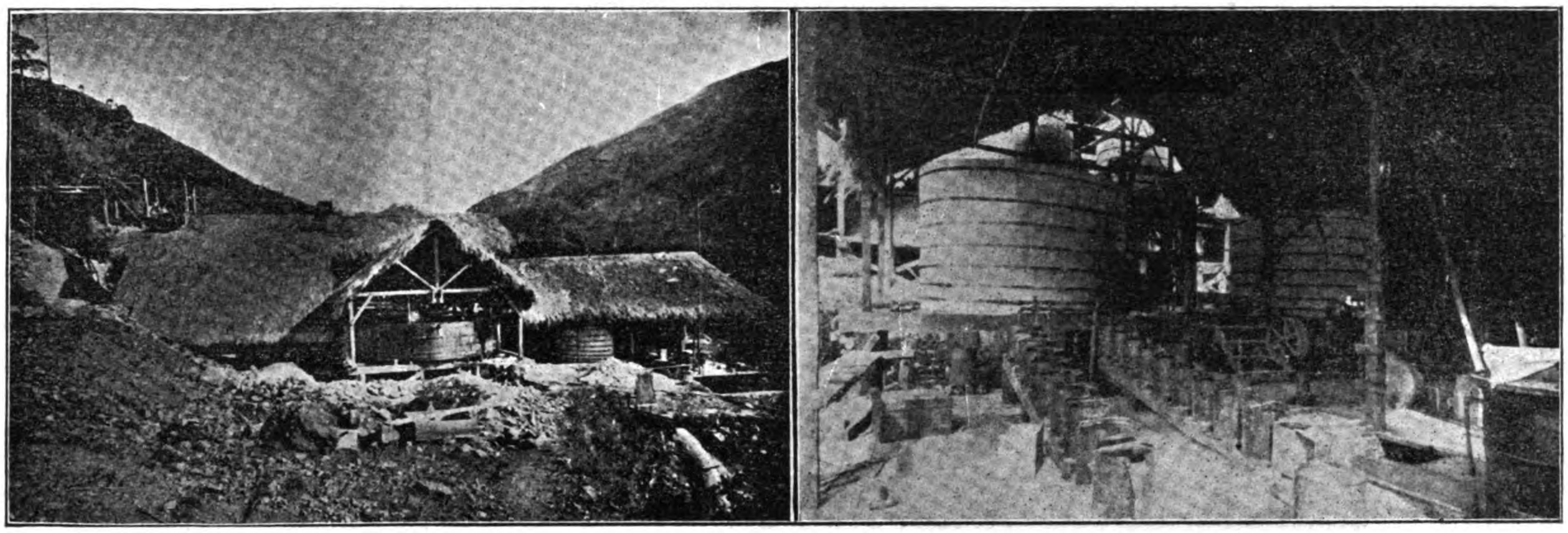
The best showing in development work and in returns for capital invested in the Benguet mining district up to the present time is that made by the Benguet Consolidated Mining Co., operating on Antimok Creek about five miles from Baguio. A three-stamp mill and a sixty-ton cyanide plant are in continuous operation and another three-stampmill has arrived. In

ican occupation, operations were confined to workings by Igorots on such a small scale as not worth considering in the world's production. Their methods were limited to the most primitive and their necessities so small that the yield was insignificant.

In the early days of American occupation the reports of good ore brought in by Amer-

of the company the outlook justified the purchase of a modern stamp mill and the installation of a cyanide plant. A three-stamp and a sixty-ton cyanide plant were installed last year and in September the mill began operations.

As the returns came in and the development work continued sufficient ore was blocked out to warrant the duplication of the plant. This



CYANIDE PLANT OF THE BENGUET CONSOLIDATED MINING COMPANY, ANTIMOK DISTRICT, BENGUET.

all, the company has invested in machinery and other equipment over $55,000 and this will be added to from time to time as the work expands. Over 1,000 feet of tunneling has been done and a large body of ore uncovered.

The natural conditions at Antimok are most favorable to the economical development of the Consolidated properties. The ore is carried from the side of the mountains by gravitation, the mine drains itself and the water available for power is unlimited. Plenty of timber is available and the climate of the Benguet Hills is ideal.

The result of the operations of the company is a nice bar of gold every week and there is every indication that this will continue indefinitely and increase in volume as the facilities for milling are extended.

The most pleasing feature of the progress made by the Consolidated is the fact that from the day that the prospector put his pick in the ground for the first time the development has been most wisely directed. Practical mining men have been in charge and no money was wasted. Before any mill was thought of, sufficient ore was made available to warrant the investment and every outlay considered from a practical mining viewpoint. The result is a highly developed property and a great future for the pioneer company that has demonstrated that mining in Benguet gives promise of large returns for capital.

It has long been known that gold existed in considerable quantities in the mountain district of Benguet, but up to the time of Amer-

centrated by natural processes and where it is being opened up now is found as a *blanket* deposit consisting of entirely loose, more or less rounded nodules in a matrix of very red, ferruginous soil.

As to the workable quantity of this ore we cannot as yet predict. The surface indications are quite wide spread, for wherever one goes over this eruptive mass he will find these pyrolusite nodules scattered over the surface.

At present one company is opening up a small surface deposit between two limestone hills about ¼ mile from Pt. Negra, where if the deposit prove to be of any extent and depth there will be no difficulty in getting it aboard ship.—WARREN D. SMITH.

ican prospectors attracted attention but resulted in but little exploitation. The difficulties, particularly that of transportation, which was then only possible over Igorot trails and which consumed over a week's time in hard travel from Manila to Baguio, practically eliminated activity in development. The completion of the Benguet road has served, however, to obviate this difficulty to a degree, but the transportation of supplies is still limited to bull carts and mule teams from Dagupan, the present terminal of the railroad. The extension of the railroad 25 miles to Camp One which is now under way and will be completed next February will serve to simplify this problem wonderfully as it will leave but 22 miles for hauling. The prospect for a railroad through to Baguio is very bright and if consummated will make the mining district of Benguet as accessible as any mining camp in the world.

The gold is found entirely in quartz in the Antimok mining region and more or less free milling. No bonanza values have as yet been discovered but the ore available is of sufficient value to make the outlook for very profitable mining sufficiently bright to justify further investment. To properly treat the ore and secure the greatest possible values from it, it is necessary to install cyanide plants. The first up-to-date mill and cyanide plant was installed by the Benguet Consolidated Mining Co. Mr. M. A. Clarke, who provided the first grub-stake and sent a force of prospectors into the Benguet hills, is the president of this enterprising company. He has never faltered in his faith in the future of the mining industry in the Philippines and by judicious investment and wise direction it might be said that he is responsible for the demonstration that gold mining in the province of Benguet is a paying business proposition. He took the initiative in the organization of the Consolidated and financiered the new company until it was placed on a self-supporting basis.

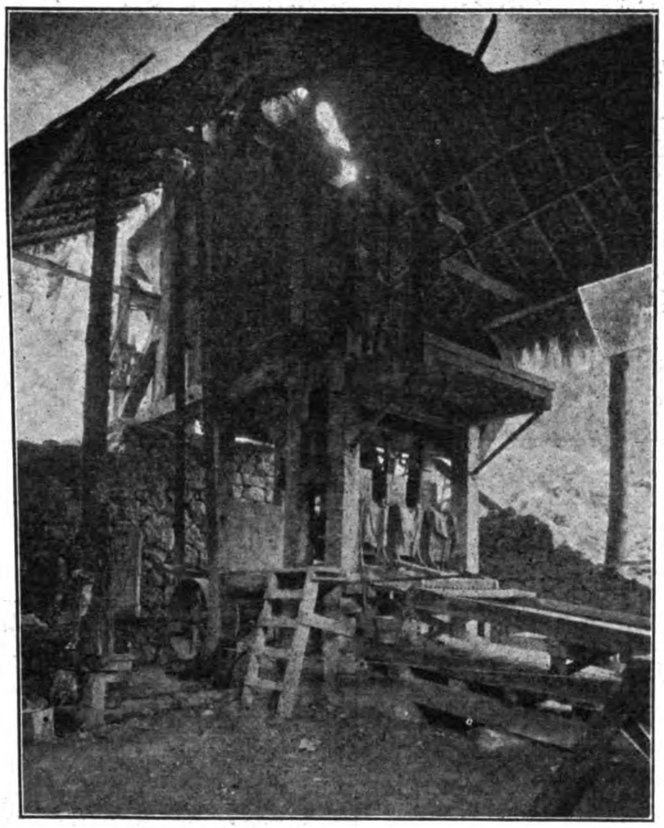
The Consolidated took over the claims owned by Mr. Clarke and those of the original prospectors, Nels Peterson and H. C. Clyde, the two latter being the pioneers who blazed the trail through the hills to the Antimok region and are now enjoying well earned prosperity. The development work has been continuous since 1899 and shortly after the organization

METCALFE A. CLARKE, PRESIDENT OF THE BENGUET CONSOLIDATED MINING CO. OF BENGUET AND PROMINENT AMERICAN MERCHANT OF MANILA. THE FIRST AMERICAN TO SUBSCRIBE TO A GRUBSTAKE.

mill arrived in Manila the other day and is now on its way to the mountains.

Many improvements have been added from time to time it being the purpose of the company to make the plant first class in every particular. The building in which the plant is installed is of iron construction. All the mine tunneling has been fitted with steel track for the ore cars. At the present time a superintendent's house is under construction and an electric light plant is now on the way from the United States.

While it is a fact that the venture necessitated the expenditure of a great deal of money, it has been fully demonstrated that the proposition is a sound one. No stock is on the market and the holders are quite satisfied with their investment.



THREE STAMP MILL IN OPERATION ON THE BENGUET CONSOLIDATED MINING CO.'S PROPERTY.

The following are the officers of the company: President: Metcalfe A. Clarke; vice-president and treasurer: Judge Daniel R. Williams; secretary: J. H. Sefert; directors: Metcalfe A. Clarke, Judge D. R. Williams, J. H. Sefert, John W. Haussermann, Nelson Peterson and H. Clay Clyde. Clyde M. Eye, E. M., is the superintendent.

THE KELLY MINERAL GROUP

The Kelly group of claims is situated about five miles in an easterly direction from Baguio, in the famous Antamok mining district. The group adjoins the Benguet Consolidated and the Bua Mining Company's properties on the west.

The formation of the district is diorite. In all, about 1500 feet of development work can be credited to this property, including tunneling, raising and cross-cutting.

The lode has been cut in half a dozen places covering a distance of more than 2000 feet. The greatest depth obtained is about 200 feet. The lode is about 20 feet wide and lies between two well defined walls. The ore will average about $5 a ton, gold, while some of it runs as high as $150 a ton. A mill test made of this ore showed 40% free-milling, the balance yielding very readily to the cyanide process, giving a total extraction of more than 80%.

The natural advantages of the location of this group of mines could not be excelled. Water is plentiful for power and can be harnessed at little expense. The most suitable timber for mining purposes is plentiful and easily available in that vicinity.

A careful investigation of the ground demonstrates that a depth of 1000 feet can be obtained by tunneling along the trend of the vein. With a mill capacity of 50 tons per day the ore can be mined and milled for $1.50 a ton and at the present time there is enough ore in sight to run such a mill for a number of years.

It is conceded that this group of mines which is owned by Mr. James Kelly is one of the most valuable in the Benguet region and perhaps there is no other group upon which a greater amount of practical development work has been done with a view to uncovering the hidden mineral wealth. Once capital is attracted to this region the development of the Kelly Group will not be long delayed.

LUBANG MINING DISTRICT

The district known as Acupan is south of Antamok and about five miles south of Baguio; the Butuan district, about seven miles south-east of Baguio, and the Lubang district, on the southern boundary of Benguet, comprise the balance of the real mining properties to which reference has yet to be made. In all three districts much has been accomplished, although lack of capital has greatly hampered all the undertakings. The prospectors have confined their operations primarily to assessment work and applying themselves so that the greatest possible uncovering of the body of ore might result without neglecting to conform with the exceedingly stringent clause of the mining law that requires the full value of assessment work to be done on each claim separately. This distribution of effort has been most discouraging. Only the minimum result is thus accomplished where, had these Argonauts been able to cooperate and direct all their energies to the development of one claim for the benefit of all, some substantial showing could now be made.

The Lubang claims are of special interest since they lie on the south fringe of the big mineral belt which, defined for the purpose of this article, includes an area of over 400 square miles and includes the Benguet and Lepanto districts. This group of claims are situated in the foothills near the south end of the Benguet road and ten miles from the pueblo of Binalonan. The camp is on the Tuboy river. The American prospector was first induced to inspect the territory on account of the indications of old Igorot workings. The first locators were Messrs. Horn and Lambert, and since 1901 development work has been progressing slowly but nevertheless steadily and with satisfactory results.

On the Anaconda, Mr. Horn's claim, a 300 foot tunnel has been made and a lead 35 feet wide of refractory ore developed which averages from $9 to $16 a ton.

The Olympic, owned by Mr. Lambert, has over 400 feet development on a lead fifteen feet wide and averaging $14 a ton.

The Never-Sweat claim of the same group, owned by Mr. Hann and others, has a tunnel 200 feet long on a lead 30 feet wide. The ore is very similar to that of the Anaconda and the Olympic.

There is plenty of wood and water at this camp and in fact it is not necessary to go outside any of the prospects to secure all that is necessary for development work.

In connection with this group it might be said that, besides the refractory ore, one of the richest free-milling specimens in the Philippines came from one of the claims of this group.

Among the claims in addition to the ones mentioned, is the Rough Rider, owned by L. O. Hibberd, one of the most promising in the group. Messrs. Straight and Misner, two well-known mining men who have been identified with the development of the resources of the north region of Luzon, have also located here and are satisfied that they have made no mistake.

INTERESTED IN MASBATE MINES

Mr. B. A. Green, auditor for J. G. White & Co., has a number of valuable claims in Masbate and is greatly interested in the development of the district.

NELSON PETERSON, ONE OF THE PIONEER PROSPECTORS OF BENGUET AND HEAVY STOCKHOLDER IN THE CONSOLIDATED MINES.

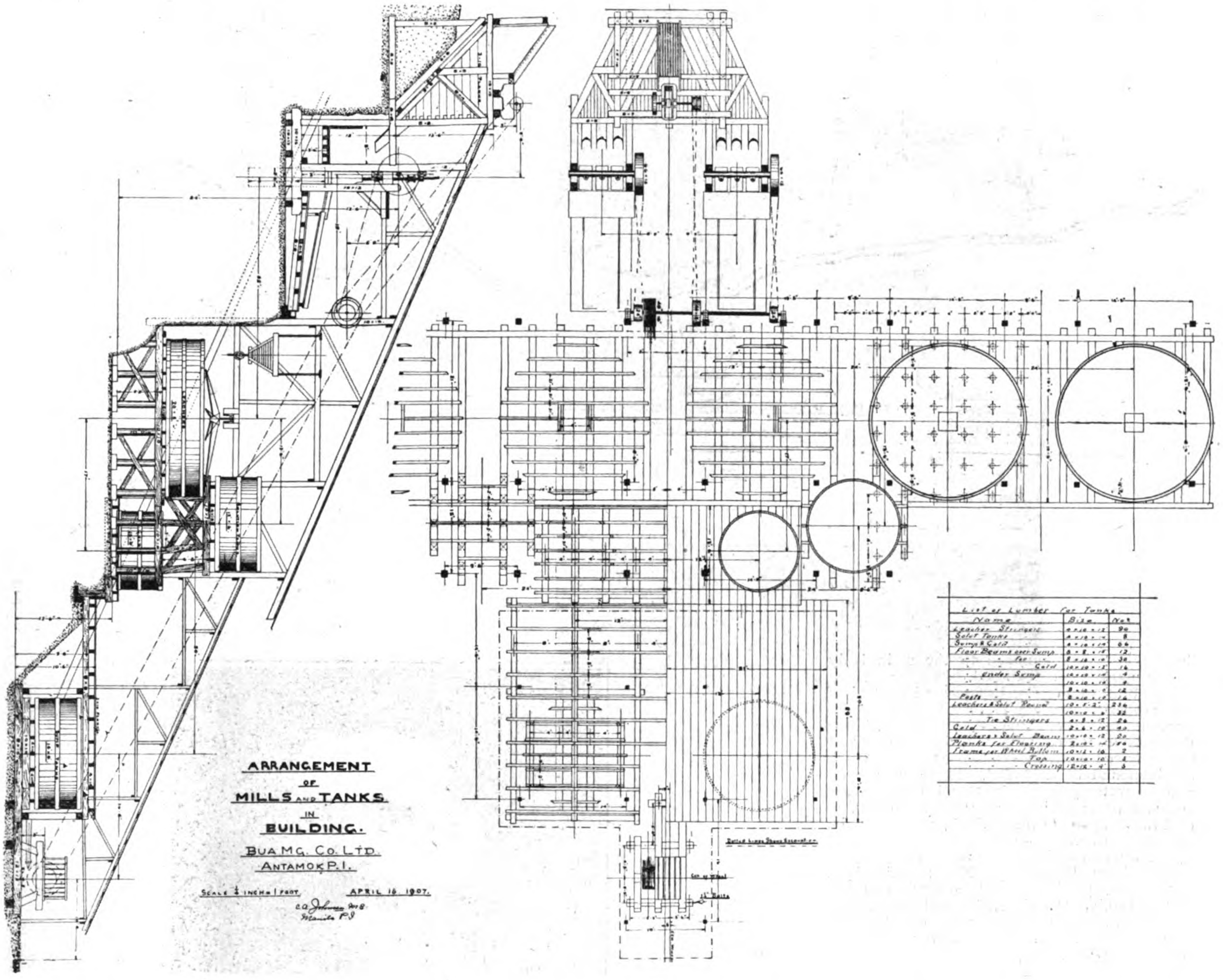
THE BUA MINING COMPANY (LIMITED)

The properties of this Company are situated in the mining district of Antamok, Province of Benguet, P. I., on the great mineral belt which runs in a northerly direction throughout the Island of Luzon, but which has not been explored to any extent, except in the Provinces of Nueva Ecija, Benguet and Lepanto-Bontoc.

Systematic development work was begun by the Company in February, 1905, and is still being carried on, results up to the present being highly satisfactory. Seven distinct ledges, of a size and value sufficient to warrant the erection of milling plants, have been opened up, as well as numerous others which show good indications but are not sufficiently developed at present to judge of their value. The method of development has been by tunnels driven on the ledges, at or as near to the river level as practicable, upraises and crosscuts being driven to prove the ledge and explore the walls, both foot and hanging, for possible blind leads. The height of the mountains above river level giving immense backs (ore above tunnel level ready for stoking), the sinking of expensive shafts will not be necessary for some years.

The country rock on footwall is a diorite and on the hanging wall it might well be termed a felsite.

All the veins explored so far are apparently true fissures, having a well defined gouge on both walls. The strike and dip is the same in each, the strike going east and west and the dip south, but the character of ore differs greatly, though the veins are parallel. The ledges deserving espeeial mention are "Buckhorn," "Sunrise," "Dorothy," "Gomok foot wall," "Gomok hanging wall," "Ultimo," and "Crown point."



On the Buckhorn 1,000 feet of development has been done, and there is approximately 10,000 tons of ore in sight of a value of $8 per ton by fire assay.

Sunrise: 218 feet of development. Approximate quantity of ore in sight, 3,000 tons; assay value $6.18 per ton.

Dorothy: 140 feet of development. Vein ten (10) inches wide; assay value $103.00 per ton.

Gomok: total development on hanging and footwall ledges 1,100 feet. Ore developed in footwall ledge 9,000 tons approximately; average assay value $8.24 per ton. Ore developed in hanging wall ledge approximately 40,000 tons; assay value $5.03 per ton. This ledge is fourteen (14) feet in width, and is a calcite or calcspar which a slight percentage of carbonate of manganese has given a beautiful pink tint.

Ultimo: Ore in sight approximately 2,400 tons; assay value $18.54 per ton. This vein is remarkable in that it carries a large per cent (34%) of di-oxide of manganese, in which a considerable part of the gold value of the ledge is contained in a free state.

Crown Point: This ledge is six (6) feet in width and assays $10 per ton, but quantity of ore in sight has not been proved.

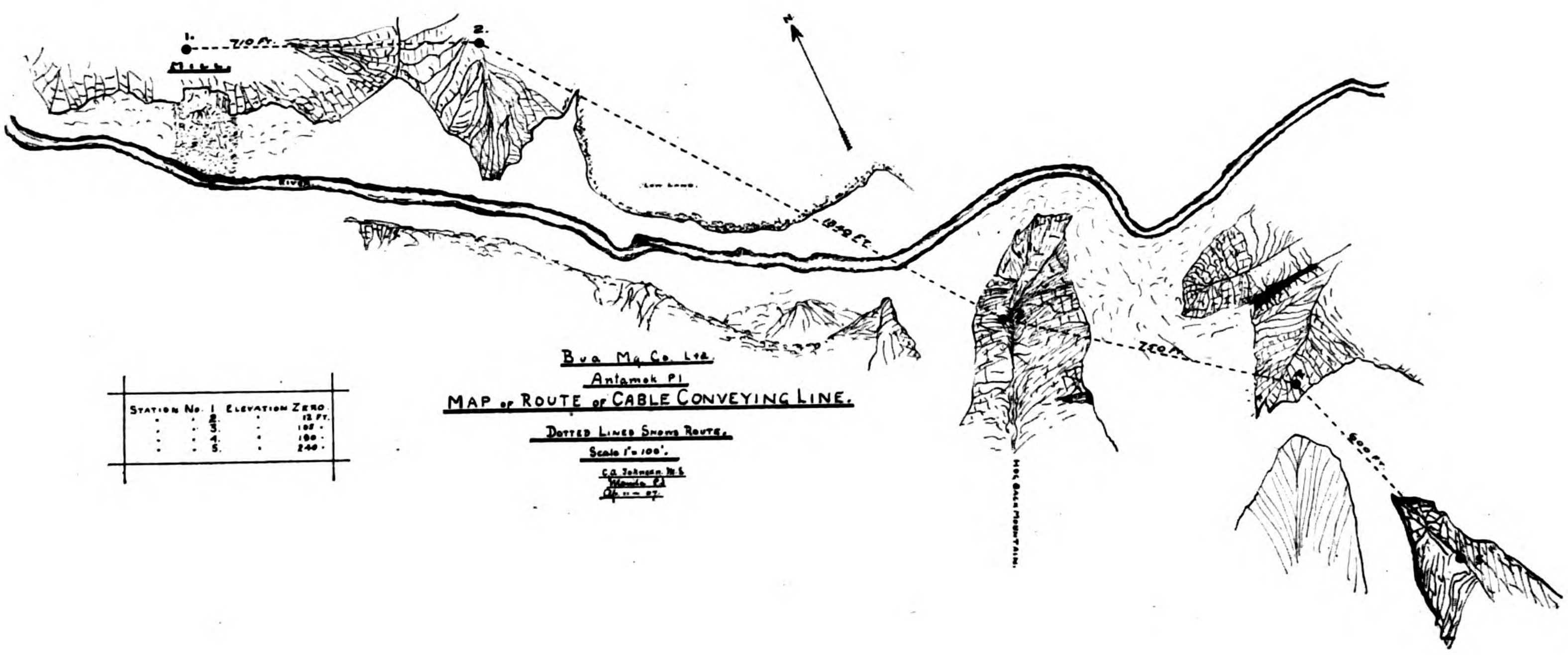
The side lines of these claims adjoin, bringing the seven ledges within a cross section of 1¼ miles, thereby materially lessening the cost of extraction of the ores.

In addition to the claims mentioned, a considerable amount of development has been done on the other claims owned by the Company, which will bring the total deveolpment up to nearly 8,000 feet.

About 75% of the values contained in the ores can be extracted by amalgamation, and the remainder by the McArthur Forrest cyanide process. A milling and cyaniding plant of 50 tons per day capacity is now being installed for treatment of the ores, the mill being driven by water power obtained from the Antamok River. The ore from the claims at greatest distance from the mill will be transported thereto by aerial tramways, actuated by gravity.

The Bua Mining Co's group of mining claims makes one of the most promising mining properties in Benguet. In all there are 32 claims, with seven well defined pay ledges, the ore running all the way from $5 to $25 a ton. The development work has been under the supervision of experienced mining men and over 5000 feet of underground tunneling has been accomplished. The longest drift is about 400 feet.

In two instances shafts have been sunk below the main level and extend below the creek level. The ore in these shafts showed an improvement in the quality of the ore as compared to the main body in the backs which contain an immense volume and extends back for over 900 feet. The presence of water interfered with the work below the levels and the development was confined to the main body of ore more easily exposed.



The Bua Mining Co. has secured control of this property and are making extensive preparations for developing the property. Two three-stamp Hendy mills and a cyanide plant have arrived from the United States and will be immediately installed. There is abundance of water power in Antamok creek to run 100 stamps and plenty of suitable timber, so that the company begins active operations under the most favorable auspices.

The directors of the company are:

T. Colston Kinney, president; Richard T. Laffin, vice-president and general manager of the Manila Electric Light and Power Co.; and H. P. Whitmarsh, mining director and manager of the Benguet Commercial Co., Baguio, Benguet.

THE HARTWELL CLAIMS

Among the first claims located in the Benguet country were the so-called "Hartwell Claims" on Kius Hill, about twelve miles south of the pueblo of Baguio.

The locator, Jack Hartwell, was one of the most reliable men that ever came to the Philippine Islands and his untimely death, about two years ago, was felt by all the miners in the Islands, who appreciated him for his honesty, ability and sterling worth. He had had much experience both in America and South Africa but had to leave the latter country on account of his health.

The claims located by him were six in number, running from the Butuan Creek in a northerly direction for about a mile. They are known as the

"PROSPECTOR"
"HOPE"
"SCHOOL-MA'AM"
"BUTTE"
"MONTANA" and
"COLOR SERGEANT"

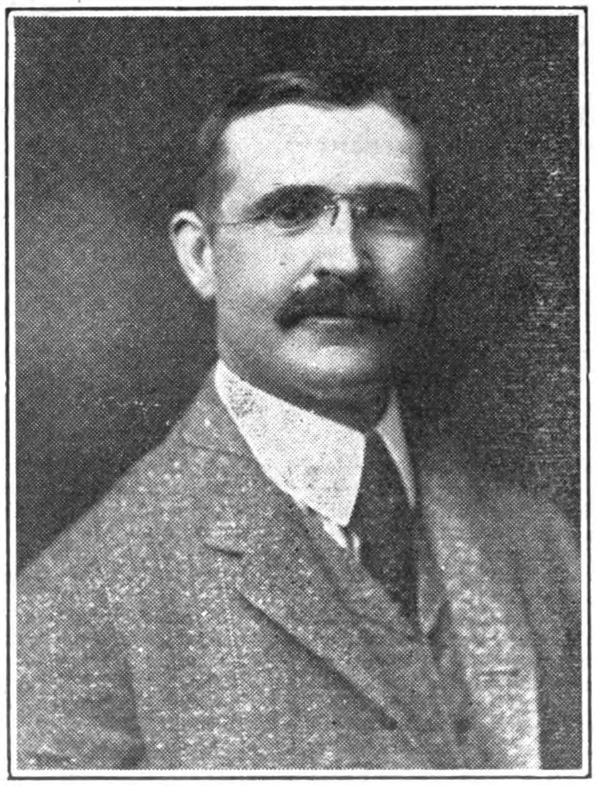
and give evidence of being among the most valuable claims in the Islands.

The "HOPE" claim is in its nature more or less of a placer claim and consists evidently of a hill top which has toppled over where the plane is located. It forms a bank of from 15 to 30 feet in thickness, and assays throughout at from $10.00 to $20.00 gold a ton.

The other claims are located on the ledges which run through that part of the country, and all show very high assays.

Hartwell, who was a very conservative man, spent the greater part of his time searching for the ledge from which the toppled-over hill had come. One day he notified the parties interested with him that he believed he had located it. Immediately afterwards word that he was down with the small-pox reached Manila, and before his partners could get any communication from him he died he had caught. The small-pox while making a visit about sixty miles east of his mines to give an opinion on the worth of some claims there situated. With his death, a great part of the work on the mines was stopped, but sufficient has been done to warrant the patenting of the same, and the mines are now surveyed by the mineral surveyor and patents for the same are about to be issued from the Bureau of Lands.

The proposition is a free-milling and cyaniding proposition, about half the gold being extractable by amalgamation.



RICHARD T. LAFFIN, VICE-PRESIDENT AND GENERAL MANAGER OF THE MANILA ELECTRIC RAILROAD AND LIGHT CO. AND VICE PRESIDENT OF THE BUA MINING CO. OF BENGUET

THE COPPER KING MINING GROUP

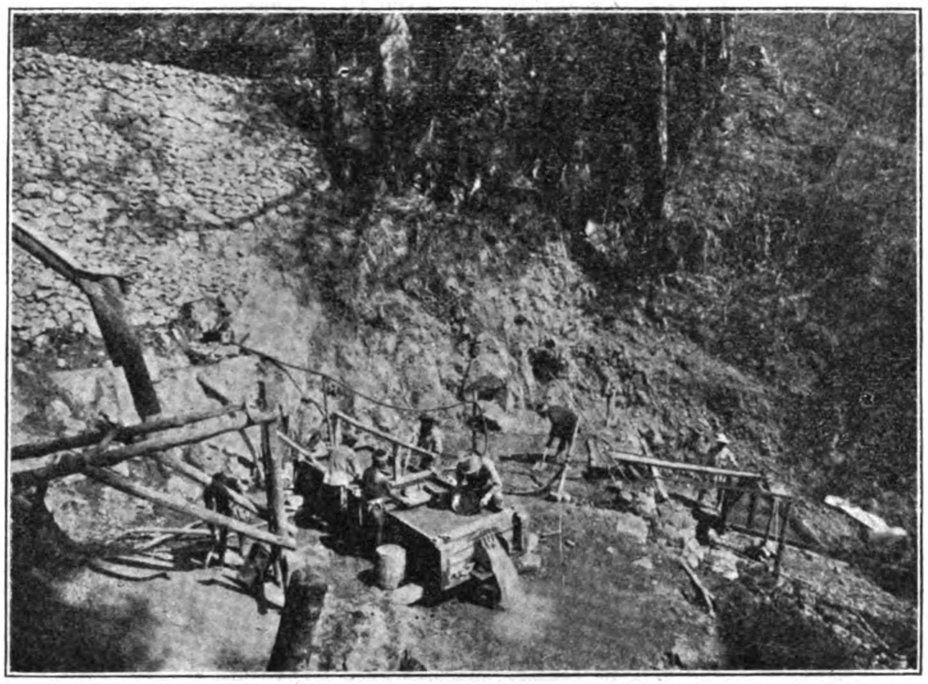
The Copper King group of mines comprises the most important part of the district known as the Bassa, which lies about six miles south of Baguio and in the immediate vicinity of the Benguet road. In point of transportation facilities this group has an advantage over all others in the Benguet mining belt. With the construction of the proposed railroad to Camp One it will be an easy matter to bring in supplies and get the ore to the port of Dagupan or San Fernando de Union.

As a whole this group of claims is featured by peculiar mixtures of ledges, some of which are free milling and many containing high grade refractory ore showing gold, copper, lead, and zinc. On the most important claim developed, the Copper King, more than one thousand feet of underground work has been done and a three stamp mill has been operating for some time. This mill is the property of W. Hanson and is equipped with a simple stamping outfit. Six dollars is realized a ton as the ore goes over the plates and, in addition to this, rich concentrates have accumulated.

This district contains about 20 developed or partially developed claims, all of which have been bonded to a company in the United States.

While, as has been said before, the main bodies of ore running through the group seem largely of a refractory nature, one ledge is a marked exception. This ledge is found in the Philip claim and averages a width of about eight feet throughout the length of the claim. The ore is composed of calcite and manganese and averages about $8 a ton, free-milling

Another ledge in the group, known as the mother lode, is over 30 feet in width and assays over $30 a ton. Many other smaller ledges of refractory ore are reported to run over $100 a ton.



OPERATING THE MEAD ON THE BUED RIVER, BENGUET.

Three more claims, covering a water-power site, have been located and some sixty horse-power of water will be available throughout the entire year.

The claims are now owned by Doctor J. R. McDill, Major Thomas L. Hartigan, Captain Charles H. Marple, and the estate of John Hartwell, and it is the intention, on the return of Dr. McDill from America, to install a complete plant and develop and work the mines to their full capacity

THE CAMOTE CLAIM

This claim, which is situated farther down the Antimok creek from the Consolidated property, is controlled by Nels Peterson, one of the oldest mining men in the Benguet mining region. C. Clyde is also interested in this property. Much development work has been done and a three-stamp mill has been in successful operation for some time with the result that a goodly sized brick of gold is sent out from this property every month. There is plenty of pay ore on the dump and the property at its present stage of development warrants an increased milling plant besides a cyanide outfit. At the present time the improvements are limited and do not include cyanide equipment and as a result much of the gold product is lost. Even with the limited outfit a white foreman and a few natives take out from $25 to $40 a day while the balance goes down the creek.

THE SUNSET GROUP

Lying above the Benguet Consolidated Mining Co.'s claims in the Antimok district are two valuable mines that promise returns equal to that of the more developed properties. These claims are known as the Sunset and Murphy and are owned by Charles M. Jenkins, Judge W. A. Kincaid and W. McElroy. Mr. McElroy was the original locator and while a minimun amount of development work has been done seven leads that give promise of a large volume of ore have been discovered. The several claims are marked by the workings of Igorots and much gold is reported to have been taken out by the native miners by their crude methods. It is the purpose of the present owners to expend a large sum for development the present season.

THE PENARANDA PLACER FIELDS

About 15 miles north-east of San Isidro, the capital of Nueva Ecija, and 5 miles east of the pueblo of Peñaranda lie the placer fields of the province of Nueva Ecija. Little development work has been done outside the ditching and sluicing by Fred L. Dorr, the pioneer prospector and miner of that region. In all Mr. Dorr has eight

THE FIRST GOLD OBTAINED BY CYANIDE PROCESS IN THE PHILIPPINES.

THE EASTERN MINING CO., MASBATE

In the Aroroy mining district, Masbate, where, outside Benguet, there has probably not been a greater amount of development done, lies a group of seventeen lode claims the property of the Eastern Mining Co., one of the pioneer corporations interested in the development of the mineral resources of the Philippine Islands. In all the area of these claims is about 340 acres and all, with the exception of five, are in the process of patenting. The location of this group is about four miles from the pueblo of Aroroy on the north-east coast of the island, and on the Guinobatan river. To better describe the mineral region it might be said to be confined to the south east of Aroroy and along the Lanan and Guinobatan rivers that empty into Porto Barrera. At least all present operations are confined to this locality.

Masbate is about 250 miles south of Manila and may be reached by steamer in about 30 hours from the Philippine capital.

The trail from the town of Aroroy to the Eastern property is about five miles, the first three miles being over a rather undesirable road. The company is building a substantial roadway along the river to the property, a distance of two miles, and, when it is completed, will have the effect of greatly improving transportation facilities and thus reduce freight rates which are now exorbitant. It costs from four to ten pesos a ton from Manila to Aroroy and six pesos a ton for toting to the Eastern property at the present time. The following is a list of the claims and their respective areas:

Name.	*Area.*
King	22.9568 acres.
Have Got (fraction)	21.5889 "
Nebraska Star	22.9568 "
Holy Moses	22.5310 "
Elise	22.5968 "
Sweetheart	22.5968 "
Mabel (fraction)	22.9005 "
Nancy (fraction)	22.8163 "
Mountain Maid	22.9568 "
Can Do (fraction)	6.0067 "
Never Sweat (fraction)	10.9381 "
Doris (fraction)	12.7339 "
El Dinero	22.5 Appx."
El Oro	22.5 " "
Alice	22.5 " "
Jessie (fraction)	20.0 " "
Katherine (fraction)	2.5 " "

The holders of the first twelve claims named above organized in 1901, and incorporated in 1903, the Eastern Mining Co., of which the Officers are at present as follows:

President - - - - - - - - A. Heise.
Vice-Presdt. and Sec. - - - Geo. Morgan
Treasurer - - - - - - - - Gay H. Parsons.

Directors . - - - - - A. Heise. C. H. Parsons. T. D. Aitken W. J. Shaw. B. H. Berkengotter. T. M. Devilbliss.

Some work has been done on all these claims to develop the volume of ore and many leads have been exposed, but particular reference is made to Have Got and Nebraska Star claims. In fact the efforts of the company have been directed to the development of these two properties and on the Have Got claim a five-stamp mill has been installed to handle the ore from that claim.

The veins all strike approximately north-west and south-east and the dip is south-west.

On the Have Got and the Nebraska Star there exists a large quantity of ore that can be milled immediately while on the others there has not been sufficient development work done to definitely pass on the value or the quantity of the ore. On the two claims referred to there has been a large amount of development work completed, and at the present time a force is daily engaged uncovering the hidden wealth. On the Have Got an open cut 177×125×20 feet in all has been worked to supply a five-stamp Union Iron Works' mill that has been installed on this property. Clear across the face on the south-east side of the shaft mouth in this open cut, the quartz is solid for over 52 feet. In addition to this there are two very clearly defined veins which appear to have been the scene of old workings and averaging 8 feet in width each. One of these veins assays $12 a ton. There have also been developed extensive old workings for many feet up the hill including some shafts 30 feet deep, tunnels and pit that indicate greater prospect for the uncovering of veins not yet touched.

A shaft has been sunk in the hanging wall of the east vein in the open cut of the Have Got. This shaft is 6×6 feet and is sunk vertically to a depth of 30 feet. From the bottom of this vertical shaft an inclined winze has been sunk on this six-foot vein, in all, to a depth of 160 feet and a crosscut 215 feet to the surface on this level completes one of the most important features of the development of this claim. The vein, as drifted on at this level for about 70 feet, assayed $8.27 a ton. The main cross-cut has since caved owing to poor timbering.

APPROACH TO "HAVE GOT" TUNNEL AND CHUTE ON EASTERN MINING CO.'S PROPERTY, MASBATE.

The further development of the company's property has been impeded by the fact that the mill is entirely unsuited for the work. Besides there are serious errors of construction so that it has run only a small portion of the time since its installation. The following report from the official records of the government assay office shows the amount and quality of the bullion shipped from this property:

Oz.	*Fineness.*	*Value.*
16	.733	$240.
11	.687	150.
29	.710	425.
10	.684	155.
1	....	15.
40	.703	588.
2	....	30.
22	.763	350.
54	.858	965.
18	....	300.
83	.772	1320.
45	.660	620.

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claims prospected more or less. He has provided a ditch from a branch of the Rio Chica to the claims, a distance of one mile. Every rainy season for the last two years some gold has been taken out, but unfortunately the sluicing outfit could not survive the yearly flood. Mr. Dorr expresses himself satisfied with the prospects for placer mining and is preparing to make extensive improvements of a more permanent nature. No definite data could be secured as to the actual amount of gold taken out from these workings.

Besides the Dorr group, Messrs. Sprungli & Co. have four claims in this region but no perceptible development has been done on their property.

A total of 331 oz., with a value of $5158.00. From the mill return book, the following data are taken:

"Sept. 19 to Oct. 11, inclusive. A total of 31 oz. 17 dwts. of amalgam were taken from the plates; at the clean up Oct. 13, 40 oz. 12 dwts. were obtained, a total of 72 oz. 9 dwts., which yielded 15 oz. 18 dwts. of retort metal. The clean up of Sept. 16 gave 25 oz. 11 dwts. of retort metal, and the two added were shipped to Manila, yielding 40 oz. of gold, .703 fine, valued at $588.00.

"From April 11 to May 3, inclusive, 114 oz. 6 dwts. were taken from the plates, and 30 oz. 8 dwts. at the clean up, a total of 144 oz. 14 dwts. This, retorted, gave 29 oz. gold (34% of the weight of the amalgam), of a fineness of .710 valued at $425.00.

"From May 7 to May 26, inclusive
Plate 66 oz. 8 dwts.
Clean up 27 oz.
Total 95 oz. 8 dwts. amalgam,
with other amalgam, amounting in all to 241 oz.; dwts., it was retorted and gave 28 oz. 14 dwts. of gold.

"Run of May 31 to June 26:
Plate 116 oz. 8 dwts.
Clean up 30
Total 146 oz. 10 dwts.

"This amount of amalgam yielded 56 oz. 16 dwt. of gold (or 38.9%); a shipment of 54 oz., .858 fine, value of $965.00. There is no means of estimating the amount of ore put thru except that, as the stamps are 800 lbs. only, and crushing through 60 mesh, and as the mill is extremely poor in design and construction, it could not have been the normal amount per stamp. Delays and stoppages on account of breakage were numerous, and finally cam shafts and bearing gave way putting the mill out of commission. From the percentage of gold in the amalgam, and the amounts obtained in these runs, it is clear that an excellent saving could be made with a well designed and well built mill. The boiler, engine, and various small parts are in good shape, and re-erection can be made at small cost. The iron frame of the old mill, with its antediluvian mortar should be abandoned and replaced by a timber frame and modern mortar box."

In the old dump from the old workings on the Have Got claim is a large amount of loose material that runs from $9 to $12 a ton. This ore is oxidized and can be handled at little cost. It is estimated that there is about 5,000 tons of this material available. It might be said that on the Holy Moses claim there is a similar dump, but no estimate of the amount it contains is available.

The newest and most important workings are to be found on the Nebraska Star. The outcrop can be traced from the open cut on the Have Got to the north-eastern end of the Nebraska Star where the work of development is still progressing. Several open cuts expose the vein along the north-west and south-east strike and a 40 foot shaft has been sunk on the foot wall. A crosscut tunnel has been driven at a depth of 112 feet below, cutting all the lodes. The direction of this tunnel is south-west across the strike and its estimated length 250 feet. The following, taken from a report of Mr. A. J. Eveland, mining engineer and general manager of the company, and which has been authenticated gives an idea of the development work on this property:

"At this date, four veins have been cut and drifts driven on each both ways from this cross cut. Vein number 1 has been drifted on to the south-east for 180 feet and to the north-west for 110 feet. It has clean cut walls, strikes south 35° east, and dips 700 south-west.

"On the north drift, at a distance of forty feet from the cross cut, a fault cut off the vein, but work was carried on, and the vein picked up 12 feet to the north-east, wider and carrying more free gold than before. Vein No. 1 averages 3 ft. 4½ in. in width, south-east of the fault and about 6 feet in width to the north-west. Sampling on Vein No. 1, Star Tunnel level, gave an average value of $5.21 (U. S. Currency) over an average width of 3 ft. 6 in. The values are very evenly distributed and on the south-west drift of this vein a slightly higher grade ore shoot comes in which will yield an average of $8.50. The widening out of this vein, the north-west of the fault, is noteworthy, and heavy high grade concentrates are appearing in larger quantity as development progresses.

"Vein No. 2, parallel to No. 1 at a distance of 44 feet to the south-west, has been developed for 50 feet on the south and 90 feet on the north sides of the main cross cut. It has a steeper dip (to the southwest) but the same strike as No. 1. It is heavily oxidized and the sampling gave an average of $12.14 to the ton, over a width of 4 feet 3 in. In common with No. 1 it has beautifully regular walls and even distribution of values.

"Vein No. 3 has been drifted on for 35 feet on the north side and for 20 feet to the south of the cross cut. Its strike is that of No. 1 and No. 2 and in width it averages 4 feet 6 inches. It will average about the same in value as No. 1 and No. 2.

"No. 4 vein parallels the first three again at a distance of ten feet to the southwest. Assays of $18.29 per ton were obtained from the development of 25 feet on the southeast side of the cross cut.

"A shaft has been sunk on No. 1 vein to the cross cut, meeting it over the junction of the cross cut and the drifts on the vein. Sampling of it gave assays ranging from $14.50 on the surface ores, to $6.00 at the No. 1 vein level, indicating the even tenor of that vein. The vein in the shaft averages about 4 feet in width. This shaft gives excellent air connection for the lower workings and proves up the No. 1 vein finely, in connection with the underground and surface work.

"Only a small amount of work has been done at a lower depth. A second level has been started on No. 1 vein, the opening being made from a gully a few hundred yards to the south-east.

"The character of the ore in these veins and workings is uniform, a hard vitreous quartz, showing banded structure, well oxidized at the lower levels, and carrying concentrates of higher grades in the form of iron pyrite.

"There is hardly a way of estimating the quantity of ore available in the "Have Got" workings, except that the open cut could supply a large amount immediately. The old dump on the "Have Got" contains under foot at least 5,000 tons, ready for immediate treatment, valued at $10.00 per ton.

"Vein No. 1 of the Star has been proved up on three sides on the north side and on four sides on the south side of the cross cut, and it is estimated that there is a body of ore here 300 feet long by 3.38 feet wide by 125 feet depth, or about 130,000 cubic feet. Tests have given the number of cubic feet to a ton of this ore as 13, and this gives a result of about 10,000 tons of ore, valued at $5.21 per ton in the vein No. 1, "which may reasonably be supposed to exist," from the careful sampling and development.

"Veins Nos. 2, 3 and 4 cannot yet be figured on as they have not been developed. It will be only a few months' work to prove up these ore bodies by upraises and drifts, and development of ore will proceed more rapidly now that the first levels and crosscuts are completed. It is particularly difficult to place any value on a property in such a state of development as this, but the total of $100,000.00 exposed ready for immediate milling should be enough to warrant the construction of development work and the installation of a mill.

"From tests made on these ores, it is found that outside of the old dumps, and the surface ores, only about 25% of the value will be free milling. There is present a variable percentage of concentrates, almost entirely iron and it will be necessary to concentrate and cyanide. The ores show no indication of becoming more basic, and probably there will be two hundred feet more in depth of partially free milling ores; no elements detrimental to cyaniding have been observed in these veins, and tests show that an extraction of over 90% may be made.

"Although but few figures are available for the cost of operation of mines, mills and of ore treatment, under the conditions in the Philippines, it can be safely said that $5.00 ore can be handled on this property at a profit and anything above that will be clear gain. There are no difficulties locally in the way of economic handling of material, in fact conditions on the ground may be considered almost ideal for operation on a large scale, when extent and value are proven. Labor, water, fuel, timber, character of ore, "lay" of the lodes, etc., are all most encouraging in aspect and from surface development over a large area, it would appear that there is to be expected large, regular ore bodies. Treatment will be comparatively simple, and transportation of supplies can be done cheaply."

E. M. BARTON, PRESIDENT OF THE MOUNT COGRAN MINING CO., MASBATE.

"The outcrops on the Elise claim are quartz which pans high (about $15.00) in free gold. Old workings occur to a considerable extent, and it is presumed from good evidence that these were operated by Chinese over a century ago. The other cuts made recently have not progressed sufficiently to more than to assure the presence of a vein, but the line of old dumps and pits continues to the Southeast some 4,000 feet; on some of them at least one vein four feet in width is exposed, dipping 65° Southwest, and with a strike of north 45° west, approximately.

"The 'Jessie and Alice' claims have been recntly located, and no work of any importance has been done. A vein of unknown width and value outcrops at the Southeast corner of the 'Alice.'

"On the 'Sweetheart,' an open cut again shows vein material, strike north 30° west, dip, with a width of six inches, which is probably a stringer paralleling a vein not yet exposed, striking North 35° West, and with a dip of 90°. Not enough work has been done here as yet to warrant sampling.

"The 'Nancy' and 'Mabel' claims show Northwest-Southeast outcrops over a considerable distance, and two tunnels, one on each claim, have been started to test the veins. On the 'Mabel' the foot wall assayed $1.65 over a distance of 60 feet, the vein being only broken into at the time of this report, and consequently the width and value of it are not known. The outcrops, however, of the 'Mabel,' are some of the heaviest in the group, and certainly measure over ten feet. Where one of these veins is believed to come thru on the 'Gold Bug' group, the old workings indicate a width of about thirty feet, and the outcrops are the richest in free gold in the district.

"The 'Never Sweat' on the north side of the Guinobatan river has a high grade vein of unknown width, shown in a 35 foot shaft, from which samples of from $50 to $125 have been reported. An 80 foot tunnel to cross cut this lode has not as yet reached it. This claim and the 'Mountain Maid' show apparently the same veins, of about four feet in width, of which no more may be said other than that it pans free gold, and that one assay gave a value of $6.20. Several tunnels and pits have more or less indicated the course of the vein, which is about North 45° West.

"The 'Holy Moses' shows one vein in a thirty foot tunnel and on the 'Catherine' fraction, another outcrop appears.

"On the 'King' a five foot cut shows quartz carrying free gold and northwest-southeast stringers cross the 'King' creek,—southeast of this location. On the 'El Dinero,' and 'El Oro,' there are as yet no workings.

"The 'Doris' has two noteworthy outcrops, a large vein (8 feet) striking northwest and carrying considerable copper sulphides (2.22% copper, $22.28 gold). Southeast of this is a shaft 15 feet deep, sunk on a 6 foot or wider vein, striking North 45° West.

"On none of the above claims is enough work done as yet other than to show that numerous veins exist, which show more or less free gold values. The ground has been secured, but most of the active development work has been confined to the 'Have Got' and 'Nebraska Star' claims."

EASTERN GOLD BUG MINING CO.

The newest figure in the Philippine field of active mining is the Eastern Gold Bug Mining Company, which has just commenced the operation of a ten-stamp mill at Aroroy, Masbate. The mill was started but a few days ago for a trial run, but seems to be a "payer" from the outset, judging from a beautiful bar of gold which came in on the last trip of the inter-island steamer "Nuestra Sra. del Carmen."

The property on which this mill is set up consists of a group of mining claims located by F. W. Beasley and William Edelmaier, two of the pioneers of the Masbate mining district, who have been holding down their locations for several years past.

The person responsible for finding the capital to open up these promising mines is W. H. Dodds, an attorney and capitalist of Pittsburg, Pa. Something over a year ago Mr. Dodds came to the Philippines as the representative of certain Pittsburg investors in order to investigate the management of a mining company which was operating in Masbate. Notwithstanding the fact that the affairs of the company under investigation were found in the worst possible shape, the mineral resources of the district made such an impression on the visiting attorney that before his departure after a few days spent on the spot he became interested in the "Gold Bug" group of Beasley and Edelmaier.

As a result of the efforts of Mr. Dodds a Risdon ten-stamp mill, with full equipment and a cyanide plant, arrived in Manila about the first of March in charge of Mr. M. P. Boag, an expert mill man sent out by the Risdon company. The outfit was at once forwarded to Aroroy and the work of setting up the mill has been pushed to completion in a little over two months' time.

The mill has ten stamps, each weighing 1000 pounds, and has a capacity of from 50 to 60 tons of ore daily. The first run, which began on May 20, was for a test only and lasted but a few days, with most gratifying results, however. This first run consisted of old dumps which have been lying on the ground perhaps for centuries. All of this old ore has now been cleaned up and actual work is beginning on the mine proper.

According to the opinion of expert mining men the "Gold Bug" makes a wonderful showing of a big body of ore. The rock is decomposed porphyry and the best values are carried in stringers of quartz.

A great deal of ancient development work is to be seen in this district and from the "signs," as the mining man reads them, this work must have been done centuries ago by Chinese miners. That these old time seekers for gold were Chinamen is inferred from the Chinese characters cut in the rocks, while the period when the work was carried on has been variously estimated at from 300 to 500 years ago, judging from the size of the trees which are now standing on the ground worked over.

At some former period there was also used in crushing the ore taken out the primitive mill known as the "arrastré," which by many is believed to have been introduced into the Philippine Islands from Mexico. That the arrastre has been in use in the district is evidenced by the occurrence of numerous rocks hollowed out for the grinding process.

At present the camp in charge of the superintendent, M. P. Boag, has a force of five Americans and twenty-five natives at work. The mill is being operated without cessation, the day being divided up into three eight-hour shifts.

THE COLORADO MINING CO.'S CLAIMS.

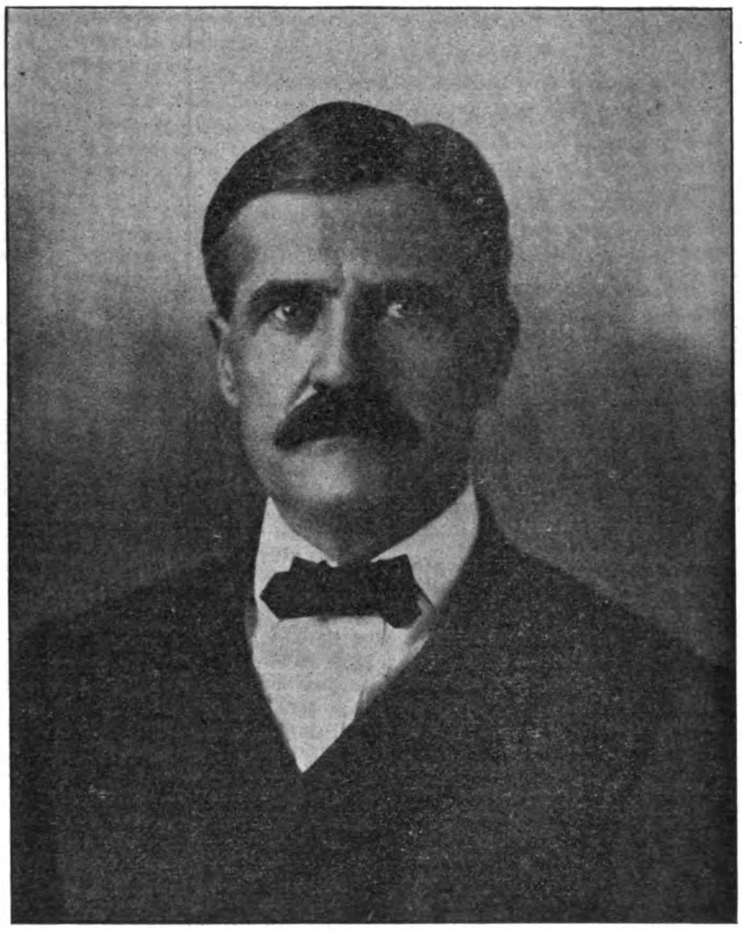
Another group of mines in Masbate that promises rich returns in the near future is under the control of the Colorado Mining Co. This company has secured by purchase the Buena Vista, the Buena Suerte, and the Grand View, and has secured the option on four other claims that does not expire until ninety days after the issue of the patents. These properties are located on the Bagadilla Mountain about three and one-half miles from the town of Aroroy, Masbate, and on the Guinabatan river.

The following is a description of the three claims owned by the company:

Buena Vista—The work of developing this claim has been prosecuted for a period of eighteen months. The main lode runs in a northeasterly direction and has been uncovered in 100 foot intervals for the full length of the claim, a distance of about 300 meters. At the point of discovery, 275 meters from the south end of the claim, the vein was uncovered and showed a width of ten feet, and at the discovery shaft the ore assayed $27.90 U. S. currency a ton. A tunnel was opened within 120 feet of the north end of the lode and near the top of Mount Bagadilla, where the vein showed nine and one-half feet in width and the ore at this point assayed from a grab sample $15.71 a ton. This tunnel was run in for a distance of 70 feet for the full width of the vein and fully timbered. The ore was piled at the mouth of the tunnel to the amount of approximately 700 tons. A grab sample of the ore from this ore pile taken in January, 1906, showed $16.12 and on February 13, with 300 tons at the mouth of the tunnel a grab sample assayed $20.47. Forty feet in from the mouth of the tunnel, where the vein measured eleven feet in width, a fair sample assayed $31.01. One thousand pounds of ore were taken from this vein, one-half from the mouth of the tunnel and one-half at a depth of 40 feet, and shipped to Luckhardt & Co. of San Francisco, who reported assays ranging from $19.64 to $21.70 a ton. These samples were tested by mill test and showed a valuation of $20.00 a ton, of which about 25% could be recovered by the amalgamation process and 70% per cent. additional by the cyanide process. Messrs. Luckhardt & Co. recommended cyanide treatment of the ores. Since January the vein has been cut every hundred feet from one end of the claim to the other, showing the same character of ore and approximately the same width of vein.

The following is an excerpt from the report of Messrs. Luckhardt & Co. upon this ore, its character and treatment:

"On the two lots to be tested, preliminary mill tests were made in order to ascertain their respective characters. These tests showed them to be identical and therefore a mixture was made of the two which mixture assayed about one ounce gold and which was used



COLONEL H. B. MCCOY OF MANILA, PRESIDENT OF THE COLORADO MINING CO. OF MASBATE.

for subsequent tests. The mill tests showed that a little over 20% of the gold value could be recovered by amalgamation; that the ore did not contain any concentrates (a very small amount of heavy sands could be panned out, which, however, did not contain any value). These tests were made on 20 and 40 mesh material and showed that 30 mesh would be preferable.

"A large mill test was made by running one-third of a ton of the mixture through a three stamp mill. The drop of the stamp was three inches, discharge, four inches; 90 drops a minute and thirty mesh steel wire screen. Quicksilver was fed into the mortar but the mortar had no inside plates. The pulp, after leaving the mortar, flowed over silver-plated amalgamated copper plates. The result of this mill run closely resembled that of the preliminary tests.

CAPTAIN CHARLES H. SLEEPER, OF MANILA, ONE OF THE DIRECTORS OF THE COLORADO MINING CO.

"Amount of gold recovered by amalgamation was:

From inside amalgamation....065 oz. fine
From outside plates.......................015 oz. fine
Total.....................................08 oz. fine gold.

which is 81.2% from inside amalgamation and 18.8% from outside amalgamation.

"As one-third of a ton contains .33 oz. of gold the percentage recovered by amalgamation is:

.08 oz. of .33 oz. is 24.2%.

"A part of the tailings were hydraulicly classified, resulting in about:

58% sands, assaying.............. .56 oz. gold.
42% slimes assaying.............. 1.02 oz gold.

"The value of the tailings in this:

In sands.......... .58 x .56..... .32 oz.
In slimes......... .42 x 1.02..... .43 oz.
Total tailings.....................75 oz. gold.

"Several cyanide tests were made as follows:

"On the original ore crushed to 20, 40 and 100 mesh, on the tailings as made and recrushed to 100 mesh, on the slimes (part of the tailings), on the sands(part of the tailings) as made and recrushed to 100 mesh, with different strengths of solutions and different times of contact.

"Sizing tests were also made on the 10 and 20 mesh material to discover how the values were distributed and to see if fine crushing would probably be necessary. The exact figures of all these tests cannot be recalled but the conclusions reached were as follows:

"A considerable part of the values are contained in coarse material (as shown by the sizing tests), which would indicate the probability of fine crushing.

"The cyanide tests showed that the ore is readily amenable to cyaniding but requires fine crushing for a high extraction. The best strength of cyanide solution should be about .3%. The consumption of cyanide per ton of ore is about ¾ pounds. The time of contact required for leaching the sands and the original ore is from four to six days. A nearly complete extraction can be obtained by agitating the 100 mesh original ore, the tailings recrushed to 100 mesh, and the slimes with a .3% cyanide solution in about three hours. The 10 and 20 mesh material contained so much fines that leaching was retarded too much.

"The ore does not contain any free acid but shows only latent acidity, which required for neutralization about 3½ lb. lime per ton.

"Though the exact figures of all these cyanide tests are not available, the figures of the extraction percentages of the best modes of treatment are:

"(a) About 96% extraction can be obtained by crushing in stamp mill with 20 or 30 mesh, amalgamation, regrinding tailings to 100 mesh and agitation with cyanide solution.

"Particulars of this treatment:

"Mortar to be narrow and designed more with a view to crushing capacity than to amalgamation. Quicksilver is to be fed into the mortar but no inside plates. Stamps 1000 lb., drop 8 in., 95 drops a minute, 6 in. discharge, 25 mesh wire screen. Pulp to flow over silver-plated amalgamated copper plates, width of mortar, and at least 10 feet line. Incline of apron plates to be regulated by hand-wheel.

"Tailings are reground to at least 80 mesh by a tube mill or modern Chilean mill. All the tailings are then treated by agitation (3 hours) with a .3% cyanide solution. The filtering of the cyanide solution to be accomplished by a Butters-Cassel-Moore slime-filter or other slime filter of proved efficiency. The final tailings of this process are about .04 oz. of gold, which means a total extraction of 96%.

"(b) About 94.5% extraction can be obtained by:

"Crushing and amalgamating as under (a), separating the slimes from sands by hydraulic classifiers, then leaching the sands with cyanide solution—time of contact to be 6 days—and agitating slimes with cyanide solution and filtering as under (a).

"(c) About 93.5% extraction can be obtained by:

"Grinding the ore to 100 mesh, which could be done by a tube mill or Chilean mill, after the ore is broken by crushers, then agitating about three hours with .3% cyanide solution and filtering as before described.

"The precipitation of the values from the cyanide solution can in all cases be accomplished by zinc shavings.

"Reviewing the three proposed processes, (a) and (b) are to be preferred to (c), as any coarse gold which this class of ore is liable to obtain would be recovered by it and practically lost with (c). The question whether the regrinding of the tailings (which is the difference between (a) and (b) will pay, will largely depend on the extra cost of treatment, but it is our opinion that regrinding would be inadvisable. It would simplify the plant in this way: that one uniform treatment only would be required for the tailings and it has the benefit of extracting the value in a few hours, as compared with six days for leaching the sands.

"In conclusion we must say that your ore is very valuable. The cost of treatment depends largely on local conditions and the size of the plant, but it is not liable to be over five dollars a ton, and probably much less. The grade of your ore can, therefore, be much lower and still leave sufficient margin for profit.

"Development of your property should certainly be gone on with and when sufficient payable ore is opened up, it warrants the erection of a first class plant.

"Note.—The ore is a honeycombed quartz with an admixture of talc; is completely oxidized and in breaking up in a crusher produces rather more than the average amount of fines. As received by us it was rather wet."

There has been work done on this claim to the extent of ₱10,000.

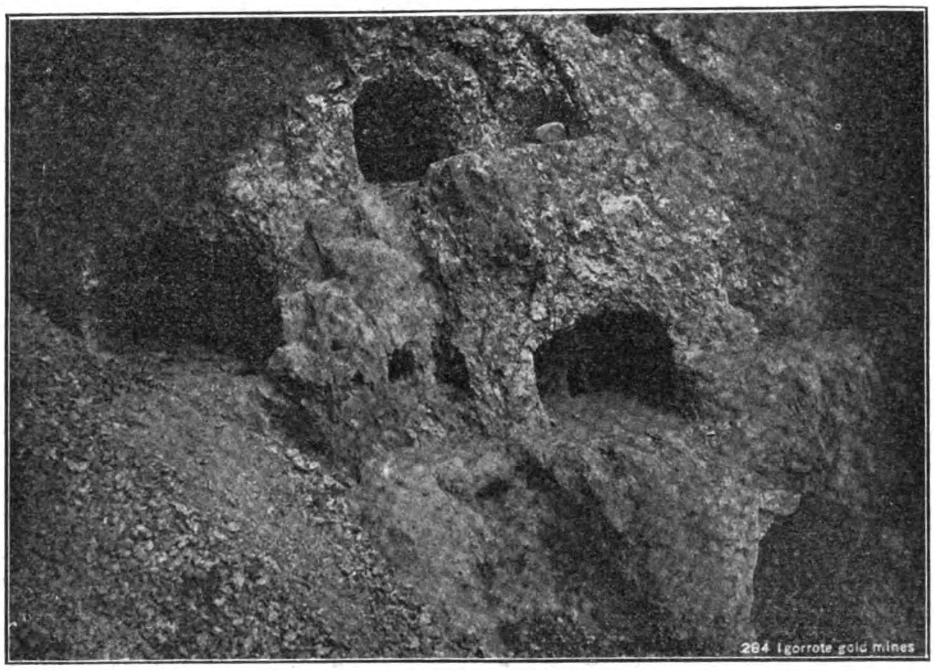
THE COGRAN MINING CO.

Among the companies interested in the development of the mineral wealth of Masbate is the Cogran Mining Co. This company continued its development work until about a year ago when it was decided to reorganize. Previous to this time, however, the reports made were very satisfactory and this article refers particularly to that period. The company has now reorganized and proposes to carry on the work.

The Cogran group is situated on the Lanang river about four miles above tide water on the island of Masbate and the properties may be reached from the coast by a road wagon.

The Cogran mineral claim is the first on the north-west end of the group. The main ledge on this claim is twenty feet wide, crops in several places and pans free gold. The surface of the claim is covered by an alluvial deposit that also contains gold.

A shaft is down 25 feet on the foot wall in serpentine. The hanging wall is granite. The dip of the vein is S. 41 degrees and the strike is S. 62 E. The Cogran has been selected as the site for a mill for the group of that name.



IGOROT MINES IN THE BOA MINING DISTRICT, BENGUET.

The Queen of Sheba claim adjoins the Cogran on the S. E. Development work on this claim and consists of one open cut on the vein 115 feet long and 25 feet wide. It shows a breast of ore 20 feet wide and 40 feet high.

By the amalgamation and cyanide process 95% of the gold and silver values can be extracted.

A tunnel commencing at the breast has been run along the foot wall for a distance of 90 feet to the bottom of a shaft 60 feet deep from which point the vein has been cross cut and is shown to be 40 feet wide and carries gold in paying quantities.

At the breast an incline shaft is down 60 feet on the foot wall. It shows the vein in place and as wide as at the breast.

A shaft on the hanging wall 125 feet S. from the incline shaft at the breast is down 60 feet or 90 feet below the level of the tunnel. The bottom of this shaft is in ore that pans free gold, but from which no assays have been made.

On both the walls of the vein there is an incrustation that pans native copper, but the quartz in the vein does not contain copper.

At a point 350 feet S. E. from the beginning of the open cut a wall of quartz 30 feet high by 150 feet long is exposed, into which a cross cut tunnel has been driven to a depth of 15 feet with no sign of the foot wall. The dip of the vein at this point is S. 41° and the strike is S. 62 E.

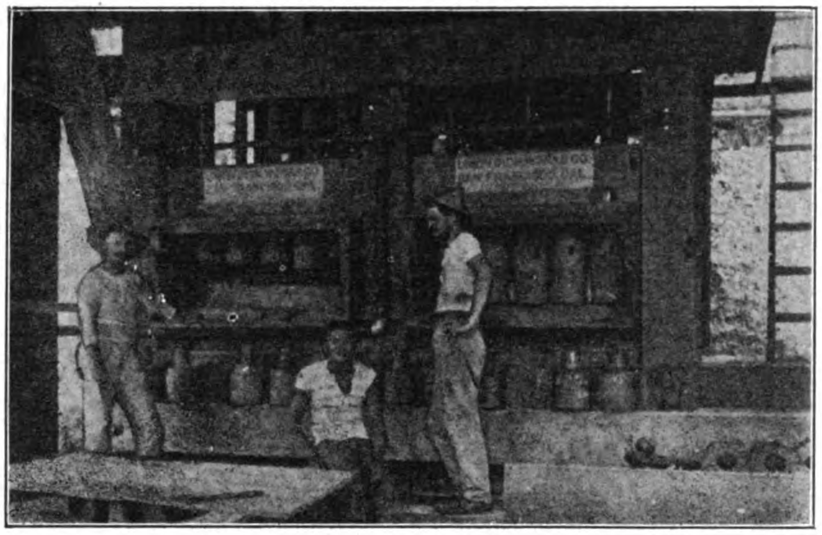
On the foot wall side of the ledge, this claim is covered with an alluvial deposit 1,000 feet long by 500 feet wide and is 15 feet deep. This carries free gold to the value of $1.00 a ton. The alluvial deposit is caused by the erosion of the ledge. The hanging wall is granite and the foot wall serpentine.

The Big Medicine mineral claim adjoins the Queen of Sheba on the S. E. The ledge crops the full length of the claim and is the extension of the ledge that passes through the Cogran and the Queen of Sheba. The ledge has been cross-cut in three places on this claim, showing ore in place to a width of 30 feet that pans free gold.

On the foot wall side of the ledge on this claim is an alluvial deposit 1,000 feet long by 500 feet wide and 20 feet deep, containing gold to a value of $1.00 a ton. The ore on this claim is a red honey-comb quartz. The strike of the ledge is S. 62 E. and the dip is S. 41.

The King Solomon adjoins the Big Medicine on the S. E. It is located on the apex of Mount Cogran and has an elevation of 720 feet above the Cogran mineral claim.

The same vein extends through the King Solomon, Big Medicine, Queen of Sheba and Cogran. It crops in two places on the King Solomon. The vein has two cross-cuts on the claim where it shows a width of 30 feet and pans free gold. The strike is S. 62° E. and the dip is S.



STAMP MILL ON THE MT. COGRAN MINING CO.'S PROPERTY, MASBATE.

THE PALANAS GROUP

The Palanas Group consists of the O. K., Palanas, Imperial, Rosebud, and Endman mineral claims.

It is an extension of the Cogran Group. The same ledge extending through both groups.

MR. MCCASKEY'S REPORT ON THE COGRAN GROUP

In the Luia region lies the Queen of Sheba vein of the Cogran Mining Co. of the claim of that name. This vein, about 30 feet wide on the claim, runs for 3000 feet in a direction N. 62 W. and can be traced, it is reported, for 15,000 feet to the south-east. It dips to the south-west 40 degrees, passing under Mount Cogran. The vein matter is in part shattered quartzose and basic material cemented by quartz crystals and in part of rather massive blue quartz. The blue quartz is reported richer in free gold than other portions of the vein and in the shattered material the cementing crystalline quartz apparently bears gold. The main vein is wet, and both walls are lined with heavy gouge and marked by slicken side. Overlying the Queen of Sheba vein is a coarsely granular igneous mass, *granite (f. n.)*, which constitutes the greater portion of Mt. Cogran. It is composed of hornblende, quartz, and apparently plagioclase feldspars, suggesting a tonalite. To the north-east of the Queen of Sheba vein lies two others parallel with it and 25 and 15 feet wide, respectively, with similar gangue, and 1000 feet to the souhwest is another vein not well defined.

But little work had been done upon these three veins at the time of my visit in May (1906) and concerning them but little evidence was obtained. Further southeast, the most southwesterly vein of this group, and of the system so far as known, is reported to be 100 feet wide as exposed on a section of a rocky cliff. In addition to the Queen of Sheba claim of Mr Lander, upon which the greater part of the development work has been done, lie the "Cogran," "Big Medecine" and "King Solomon" claims on this lode, located respectively by Mr. Collett, Mr. W. W. Clark, and Mr. R. N. Clark. These claims located on the vein 1000 feet northeast of the main lode by Mr. R. N. Clark, Mr. George Lander and Mr. W. W. Clark, respectively, are the "Louise," "Captain John," and the "Niagara." On the vein approximately 1000 feet southwest of the "Queen of Sheba" lode, lie the "O. K." "Palinas," "Rosebud," "Imperial" and "End Man" claims of Mr. Hunter, Mr. Collett, Mr. W. W. Clark, Mr. R. N. Clark, and Mr. Lander, respectively, and it is on the boundary between the first two of these that a small tributary of the Napangan river flows across the vein, forming a waterfall of 30 feet and exposing a width of 100 feet of vein matter. In addition to those are the "Lena" claim of Mr. Heise and "Hoosier" of Mr. Moore, northeast of the "O. K." Northeast of the "End Man" lie "Eastern Star," "Hawkeye," "Empire," "Bavarian" and "El Oro "claims located respectively by Mr. Morse, Mr. Shortess, Mr. Sibbly, Mr. Bartlett, and Mr. Saul. On the "Eastern Star" the vein is apparently 20 to 25 feet wide. On the "Queen of Sheba" vein a tunnel 200 feet long has been driven along the rim with an upraise 100 feet from the face of the surface. This uprise has been enlarged at the top to form an open cut 30 feet deep and forty feet across, exposing the ore. An incline shaft also extends along the foot-wall for 60 feet from the level of the tunnel. The bottom of this shaft is in bluish quartz assaying $14.06 to the ton in gold. The tunnel extends along the foot-wall for 30 feet beyond the open pit where the vein is cross-cut by a drift of 45 feet long running obliquely across. Over this cross-cut a shaft has been sunk 25 feet, but has not yet reached the workings below. In addition to the above exploration work a circular vertical shaft has been sunk for 60 feet from a point 150 feet south of the cross-cut, and a number of short drifts, cross-cuts and strippings further expose the ore-body of the vein.

"As a result of the extensive workings on the Queen of Sheba claim a dump estimated to contain 2,500 to 3,000 tons of ore is now available for crushing. Samples of selected ore from this dump assayed $24.39, and a general sample returned $14.06 to the ton in gold

"The Mount Cogran Mining Co. having opened up considerable ore and having a dump of sufficient value to pay for the plant have recently imported and erected a modern Union Iron Works 10-stamp mill with 1,000-lb. stamps, single discharge narrow mortars and two apron plates 4½ feet wide and 12 feet long. A track has been laid along a leveled way from the mouth of the tunnel and ore dump to the crushing house and the ore is carried along this by four patent steel dump cars with a capacity of ¾ tons each. The ore is crushed in a Union Blake crusher of 7×8 inches, passes through a grizzly 4×10 feet in size with two inches between the bars, falls into a fifty ton ore bin and is fed by two patent challenge feeders to the stamps. From the amalgamation tables the tailings are led by sluices and impounded for the present for future treatment by the cyanide process. The topography of the ground and the design of the plant have been so utilized that the material is handled at a minimum cost by gravity alone. Although a 40-ton cyanide plant will be eventually installed, the company will crush and amalgamate only at this time. Power is obtained from a 30 H. P. self-contained throttling engine of the single slide valve type with automatic cut-off. The steam is generated in a 40-H. P. horizontal tubular boiler with a heater and Cameron feed pump. Water is pumped from the Luia for steam purposes by a Worthington Duplex pump and the fuel used is native firewood furnished at $1.50 a cord. The consumption will probably average 3 to 4 cords a day giving a cost of not more than $6 in twenty-four hours. The 1000-lb. stamps drop 100 times per minute crushing the ore through a 40-mesh screen. The mill timbers are particularly noteworthy, being of hewn and squared sticks of the finest native hardwoods, molave, betis, red narra, guijo, acle, amuguis, and lauan. The engine, boiler and fly-wheel are on cement foundations resting on bed rock and the ground sills are morticed on molave piles driven to solid rock. Another noteworthy feature of this remarkable mill is that its heaviest parts were swung from a crane on the Lanang river where they were unloaded from cascos placed on a wagon of special design, hauled four miles to the mill-site over a road and bridges constructed for this purpose and swung into final position on timbers prepared to receive them without at any time resting on Masbate soil.

OFFICERS OF THE COMPANY.

The officers of the Coglan Mining Co. are well known business men of the islands. Capital has never been plentiful in the Philippines and for this reason mining men have had struggled along without outside assistance. At the last meeting of the stockholders the following officers were elected:

President, E. M. Barton: Vice-president, Zan F. Collett; Directors: Colonel Joseph N. Wolfson, L. B. Wilhelm, M. Martin, Zan F. Collett, and E. M. Barton.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAY, LIGHT, POWER, ETC.

Tokio Electric Trust.—The amalgamation of the Yokohama Kyodo Eelectric Light Company and the Kanagawa Electric Light Company was completed on May 16.

Hongkong Electric.—The Hongkong Electric Co., Ltd., have decided to pay a dividend of 10 per cent, write off 44,120 for depreciation and carry forward to next account, $2,951. It seems to have been a fairly satisfactory vear.

Kongmoon Tramway.—A Hongkong merchant, Mr. Yip Yin, of the firm of Wah Yik Company, has applied for permission to float a company with a capital of $1,300,000 to build an electric tramway at Kongmoon, in Sanwui district.

Yokohama Electric Extension.—The Yokohama Electric Railway Company has applied to the Kanagawa Prefectural Office for permission to extend the present terminus in front of the Kanagawa Station to Gotemmachi, via Shichikencho, Takisbitacho, and Ryoshimachi.

Nippon Automobile Co.—A consultation meeting of the shareholders of the Nippon Automobile Company which lately obtained official permission to run automobiles for passenger traffic in Tokyo, was held in the Y. M. C. A. at Kanda, Tokyo, recently, when a resolution was passedto reduce the Company's capital by 2,000,000 yen.

Electric Tram Service for Nanking.—A Nanking dispatch states that work upon an electric tramway between the Viceroy's yamen and Hsiakuan, where the steamers of the Yangtse service moor, a distance of about six miles or so, is to commence without delay. The contract for laying the line was given by Viceroy Tuan Fang last December to Taotai Wang Feng-hao.

Nagasaki-Moji Tramway.—The authorities are now considering an application from the Nagasaki Electric Lighting Company for permission to construct an electric tramway from Nagasaki to Moji. The residents of the latter place have decided to present the land required for the scheme in their district, as they believe the construction of the tramway would materially benefit Moji.

Change to Electric Power.—The Buso Central Railway Company, which recently obtained official charter to construct a railway from Sendagaya, Tayotamagori, Tokyo-fu to Odawara, Kanagawa prefecture, a distance of 53 miles, has decided to change the proposed steam motive power into electricity. The Company will apply to the authorities for permission to effect this alteration.

Indian Electric Tramways.—Consul General W. H. Michael reports as follows from Calcutta: The progress of the mining industry of Mysore State is shown by the fact that the government has issued an order under the Mysore Tramways Regulation Act of 1906 authorizing the construction by the Mysore Manganese Company (Limited) of a tramway (electric line of railway) from the Shimoga railway station to the manganese mines near Kumsi in the Shimoga district.

Chinese Tramway for Sicawei.—A Nanking dispatch to the "Shenpao" states that a certain Taotai Wen Ho presented a petition the other day to Viceroy Tuan Fang to the effect that the former had obtained a mercantile capital of a million taels and offered to construct the proposed electric trams in Nanking. In reply the Viceroy stated that the Government having already decided to itself construct the Nanking electric trams, the money was not needed in that city but the petitioner could use the money obtained by him to construct a trolley line connecting Sicawei with other parts outside the foreign settlements.

Sprinklers on Siam Tramways.—The Siam Electricity Company will in the near future have in use for watering the roads over the whole of their tramway system a water-sprinkling-electric tramcar of the McGuire-Cummings type. The tank is a horizontal cylinder 5′ by 9′6″ mounted on an ordinary tram truck, and will have a capacity of 1,200 gallons. Connected with the tank will be a turbine pump with electric motor which is able to deliver 250 gallons a minute, 100 feet head, and for ordinary use this will throw a horizontal spreaded stream of water 50 feet to the side from the centre of track. This tank will also be of great use in case of fire. It will also be fitted with hose, and a one inch fire nozzle. By this means a stream of water can be thrown 80 feet. The pump can raise the water from 25 feet and fill the tank in five minutes."—*Journal of the Engineering Society of Siam.*

Wireless Telephone.—A wireless telephone of the most simple nature has been invented by Mr. Tako Shojiro of No. 45, Gochome, Aoyamaminamicho, Tokyo. The inventor is a young man of 27 years of age. The new machine is now named after the inventor, the Tako wireless telephone. He claims, according to the *Tokyo Asahi*, that his system is far superior in every respect to others in the world, of which there are now two different kinds. Whereas the latter are defective for practical purposes, it is asserted that the Tako wireless telephone can be worked quite easily and perfectly between ships in motion and even across walls, which are effectual obstacles for its rivals. Moreover, the new contrivance is simple in construction and cheap in price. It is further stated that it can be connected with ordinary telephone apparatus and easily worked. In February this year the inventor applied to the Patents Bureau for a patent for his invention, but official sanction has apparently not yet been granted.

Siam Tramway Extensions.—"Important agreements were signed between His Majesty's Government and the Siam Electricity Co. Ltd., and the Menam Motor Boat Co. Lt.," says the *Bangkok Times*. In the case of the Electricity Co. the new agreement forms an addition to the agreement signed on the 9th November 1901, and provides for the construction of a line along Rajawongse-road, an extension of line from the terminus at Pakanam Railway bridge for 400 metres along the Hua Lampong-road, and the construction of a line on the Asadang-road (beginning near Messrs. John Sampson and Son's) and running to the river. The Menam Motor Boat Co. have secured the right to construct and operate a line from the northern mouth of the Paklat klong to and through the town of Paklat.

The Electricity Co. undertakes under penal clauses to provide fire engines and pumps and a staff ready to go anywhere over their system by night or day in case of fire, and further to provide five elevated water tanks with a capacity of 25 tons each for fire protection. In addition the Company undertakes to water the streets daily over which their system passes.

RAILWAYS AND RAILWAY SUPPLIES

Hokkaido Railway Co.—The Hokkaido Railway Company held a general meeting in Tokyo on May 15th. During the last half year, the company sustained a loss of *yen* 86,607.29.

Shansi Railway.—The chief engineer of the Peking syndicate has reported to the Governor of Shansi that the railway from Pingtingchou to Tsechou in Shansi, which just been surveyed, will be completed in four years.

Ampo Railway.—There appears to be a strong probability that the reconstruction of the Mukden-Antung line—known in Japan as the Ampo (Antung and Hotien) Railway—will be abandoned in favor of a road from Kirin to Antung.

Kirin-Changchung Railway Loan.—Peking wires that the sum of money the Chinese Government is going to borrow from the South Manchurian Co. for construction of the Kirin-Changchung railway is stated to be something like 4 million *yen*.

Chinese Railways.—The Chinese department of posts and communications has decided that all railway concessions granted to mercantile syndicate shall last for 25 years only, and that after the expiration of 25 years the railways will become the property of the Government.

Kagoshami Railway Extension.—The Yatsushiro-Toshimatsu section of the Kagoshima Railway will be opened to traffic in April or May next year, when Tokyo and Kagoshima will be connected, the only interruption being the Bakan straits. The journey will then be covered in about 40 hours.

Asan Railway Co.—Official charter was given under date of May 2 by the Japanese government to the Asan Railway Company to construct a line from Muyomachi in Tokushima prefecture to Takamatsu city in Kagawa prefecture, a distance of 42 miles 30 chains, with a capital of 2,000,000 yen.

Buso Central Railway.—Official charter was granted under date of May 6 to lay the Buso Central Railway from Sendagaymachi, Toyotamagori, Tokyo-fu to Odawara, Kanagama prefecture, a distance of 53 miles. The scheme is promoted by Mr. Amenomiya and 81 other persons with a capital of 2,500,000 yen.

Proposed Korean Railway.—Messrs. K. Okura, T. Nagamori, and twenty other persons are promoting a railway company with a capital of 20,000,000 yen for the purpose of constructing a railway between Gensan and Chinnampo via Phyong-yang, a distance of 191 miles. The promoters have applied to the authorities for a subsidy of 6 per cent.

Kwansei Railway Co.—At the Kwansei Railway Co.'s general meeting at Yokkaichi, Mr. Kataoka, President of the Company, spoke on the conditions during the last half of 1906 and on the government's proposal with regard to the nationalization of the railway. The half-yearly net income was *yen* 803,544.95 and an interim dividend was declared at the rate of 6.32 per cent per annum.—*Japan Advertiser.*

The Hsinmintun-Moukden Railway.—Notwithstanding that all railway materials and tools that were prepared for the Hsinmintun-Moukden Railway are not included in the agreement for transferring the line to China, these have all been handed over to China under the orders of Mr. Goto, the president of the South Manchurian Railway Co., in order to improve the relations between Japan and China.

Manchuria Railway Equipment.—Vice-Consul P. S. Heintzleman advises that the head office of the newly organized South Manchuria Railway Company will be located in Dalny (Tairen). The vice-president informed the vice-consul that the gauge is to be broadened to standard; double tracking is to be effected to Mukden 247 miles from Dalny, and possibly farther north; the whole roadbed is to be improved and the stations enlarged, which will require three years.

Phyongyang-Gensan Railway.—The construction of the Phyŏngyang-Gensan Railway, to be taken up by a private concern as recently decided upon, is not likely to be commenced at an early date. The railway constructed will connect Pyŏngyang with Gensan and Chinnampho. But the construction of the Phyŏngyang-Gensan section is an extremely difficult work. Unless a dividend of 6 per cent is guaranteed by the Government no private company will be able to take up the work.

Yunnan Railways.—The French railway syndicate in Yunnan asked Viceroy Ting Changto of Yunnan and Kueichou some time ago to grant a concession to build a railway from Yunnan to Szechuan. The Viceroy, however, has not granted their demand.

The gentry of Yunnan now have appealed to the Viceroy to build the railway themselves. They state that the annual revenue of receipts in Yunnan amounts to Tls. 1,560,000 (Revenue, Tls. 600,000; Salt, Tls. 260,000; Rice; Tls. 700,000), which should be sufficient to build the railway.

The Peking-Hankow Railway.—The receipts of the Peking-Hankow railway for the year amounted to $7,200,000, of which $2,200,000 was devoted to general expenses, 2,300,000 to interest on the Belgian loan, $400,000 to interest to the board of finance, and $200,000 to a reserve fund, leaving a balance of $2,000,000. Of the latter sum one-fifth is apportioned to the Belgian syndicate, thus $1,600,000 remains as net profit. The receipts for the year show an increase of over twenty-five per cent on the previous year's working, and shareholders are looking forward eagerly to the longed-for redemption of the loan bonds.

Toyama-Naoyetsu Railway.—The railway line between Toyama and Naoyetsu is now in course of construction. The Toyama-Uwotsu section (17 miles 65 chains) of the line is expected to be completed by the end of this year. Work on the Uwotsu-Ichifuri section (20 miles 33 chains) is to be started in the course of the present year, and the Naoyetsu-Nagahama section (100 miles) has been just started, while the Nagahama-Ichifuri section (33 miles) is now in course of land survey. This latter section is the most difficult part of the work, there being such precipitous places as the well-known Gyashirazu and Koshirazu where a number of tunnels are to be built. It will be four years before this line is open to traffic.

Kwangchengtse Railway Station.—A telegram from Kwangchengtse, Manchuria, reports that an extensive area of ground between the town of Changchung and the Russian railway station has been selected as the site for the construction of the Kwangchengtse railway station which will serve as a connecting link between the South Manchurian, the East China and the Kirin-Changchung railways.

The *Hochi* says that an understanding has already been effected between the South Manchurian Railway Company and the Chinese authorities, whereby it is agreed that as soon as the former raises a loan of yen 80,000,000 in Europe a part thereof shall be supplied to the Chinese authorities who are in need of funds for the construction of the Kirin-Changchung and other lines east of the Liao.

An Arctic-Ural Railway.—The Committee which examines all projects for new railways at St. Petersburg granted to M. von Knorre a concession to lay down a railway, which will be of great importance in developing the trade of Western Siberia. The projected railway will start at Sobam, which is on the left bank of the river Obi, nearly 20 miles southwards of Obdorsk, and its northern terminus will be on the Varandei Bay in the extreme N. W. corner of Siberia on the Arctic Ocean. A commercial harbor will be established on Varandei Bay, and a river-port on the river Obi. The total length of the line will be nearly 250 miles. The preliminary surveys have been made by the engineer who built the Baltic Railway, and he estimates the cost of laying down the Arctic-Ural Railway at £4,200,000. The line will be built by a private syndicate, in connection with which an export company will be founded on a large scale.

The South Manchurian Railway Company.—The total sum required to improve the various establishments of the South Manchurian Railway Company is estimated at about 27,880,000 yen. Of the above, about 10,510,000 yen is needed for the reconstruction of the Tairen station, for repairs to the Tairen, Changchung and other lines; for the construction of the Company's buildings, reconstruction of various stations along the lines, establishment of coal depots, and other works, while the remaining 17,370,000 yen is needed for the manufacture of 240 locomotives and over 3,000 passenger coaches and goods cars.

The work of repairing the entire length of the railway will be commenced by the middle of June. The Company has concluded a contract to purchase railway sleepers and other materials from the Mitsui Bussan Kaisha and the Okura Gumi, and has ordered 180 locomotives, 60 passenger coaches and 2,000 goods cars from America. Of the above seven locomotives and a number of passenger coaches are to be delivered to the Company by the end of June. It is reported that the transportation capacity of the South Manchurian railway will be doubled in a year.—*Japan Advertiser.*

PUBLIC AND PORT WORKS, WHARVES, ETC.

Fort William McKinley Improvements.—Work is now in progress on a ₱150,000 military prison at Fort McKinley, near Manila. The building will be constructed of reinforced concrete.

Loochoo Island Harbor Improvements.—Work for the improvement of Nawa harbour, Loochoo Island, will be commenced shortly. The cost, amounting to 700,000 *yen* was recently voted by the Diet.

Bombay Harbor Branch.—The construction of the new harbor branch line which will serve the new Bombay docks is making good progress. A small section, indeed, is being worked for the bulk oil traffic.—*Railways.*

Bakan Straits Improvement.—The Nippon Government has decided to blow up sunken rocks at the entrance to the Bakan straits from the Sea of Japan and will ask the Diet for a sum of about 100,000 *yen* for the purpose.

Canton Bridge Construction.—The iron bridge being erected at Yau Lan Man, near Canton, China, is to be 1,220 feet in length and 40 feet in breadth. The capital of the company is to be $1,000,000 in 100,000 shares of $10 each.

Docks for Chinese Posts.—The Peking government has decided to build docks in different provinces of the Empire. Big provinces will receive a subsidy of $800,000, medium-sized provinces $600,000, and small provinces $300,000.

Canton Water Works.—Work in the new bund goes on very slowly. From the steamer wharves to the Electric Power House the river front is strewn with water pipes, a foot or more in diameter, that are to be used in constructing the water works system for Canton.

Artesian Wells at Military Posts in the Philippines.—The quartermaster's department has purchased an artesian well-boring plant having facilities for boring 3,000 feet. The first well will be sunk at Zamboanga and it is expected that the cost of boring together with standpipe will be about ₱20,000.

Pearl River Bridge.—Preliminary borings for the foundations of the bridge to be erected across Pear. River just above Dutch Folly are now being made

THE FAR EASTERN REVIEW IS DEVOTED TO THE INDUSTRIAL DEVELOPMENT OF THE COUNTRIES OF THE FAR EAST AND TO THE ADVANCEMENT OF COMMERCE BETWEEN THE ORIENT AND THE PROGRESSIVE NATIONS.

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The completion of this structure will make the important island of Honam easily accessible from the city. Already property values on the island are rising.

Madras Port Works.—The Madras Port Trust propose to incur expenditure on the following important works: Rs.1,24,000 for modern quick crane equipment for the harbor; Rs. 20,000 on the construction of a hydraulic power house; Rs. 3,800 for equipping the present 20-ton hand-crane with steam pier; expenditure for installing and using electric lights and fans in the offices of the trust.

Tairen Dock Construction.—The present dock at Tairen being capable of accommodating steamers of only about 2,500 tons, the South Manchurian Railway Company is contemplating the completion of the former Russian dock, which is partly constructed. It is reported that after the completion of this scheme, the dock will be capable of accommodating warships or steamers of about 20,000 tons.

Straits Settlements: Public Works.—By an Ordinance dated 15th February last the authorities propose raising the sum of £7,861,450 for defraying the cost of the following works:—Singapore Harbor works, £1,264,000; Municipal waterworks, Singapore, £523,-187; dock, Prai River, Lagoon, and graving dock and other construction work at Tanjong, Pagar, £2,162,600; Penang Pier extension, &c., £200,000; and waterworks &c., at Penang, £170,000.

Tsingtau Waterworks.—Consul Wilbur T. Gracey makes the following report on the proposed extension of the waterworks at Tsingtau, China: The German Government of the Colonial territory of Kiaochow is calling for tenders for the erection of a new water system for the city of Tsintau, the estimates to cover (1) one pumping station; (2) a pipe line 12 kilometers (7½ miles) in length (connecting Litsun and Tsintau), with pipes measuring 400 mm. (15¾ inches); (3) piping for a high reservoir. Estimates are to be submitted before July 1, 1907, at 11 a. m. The plans, descriptions, etc., may be obtained by addressing the Governmental Construction Department (Kaiserlichen Bauverwaltung, Abteilung "Wasserwerk Litsun"), Department for the Litsun Waterworks. A charge of $5 is made. Closed offers should be addressed to the "Ne Wasserverorgungsanlage von Tsintau, China." The extension has been necessary owing to the fact that the present supply of water for the city is insufficient.

Huangpu Conservancy.—At a meeting of the Huangpu Conservancy Board held May 21, it was decided to accept, subject to certain conditions to be agreed upon subsequently, the Dutch tender for the dredging works at the Woosung Bar. Three tenders, it will be remembered, were put in, the lowest at Tls. 1,615,000 by a German firm, another at Tls 1,697,261 by a French firm and the highest at Tls. 2,187,798 by a Dutch syndicate. At the very outset there was reason to believe that the German tender was based on a misconception, and we may conclude that the Conservancy Board in arriving at its decision was of opinion that the work could not be done satisfactorily at the sum quoted by the lowest tenderer. The award to the highest tenderer, who happens to be of the same nationality as the consulting engineer, may give rise to comment in certain quarters, but there is every reason to believe that the board has gone thoroughly into the matter and has satisfied itself that the Dutch Syndicate was the only tenderer really capable of carrying out the work in an efficient manner.—*N. C. Daily News.*

MINING, MINERALS AND THE METAL TRADE

Coal at Ping Hai.—A coal mine has been discovered in the district of Ping Hai, and it is reported very rich and worth working. The native authorities intend to float a company to work the mine.

Luanchow Coal Mines.—Viceroy Yuan Shih-kai has proposed to raise a joint capital of Tls. 2,000,000 for the development of the Luanchow coal mine in that province, and has appointed Jao Chang-ling to prospect the mining area.

Fushun Coal Mine.—The South Manchurian Railway Company is making investigations as to the method of improving the colliery works at Fushun. It is believed that it will not be difficult to produce 1000 tons of coal a day.

C. E. and M. Co. Enterprise.—The new electrica installation at the Tongshan Mines of the China Engineering and Mining Co. is probably the largest, most complete, and most up-to-date in China. It has been in operation for several weeks.

Idzu Gold and Silver Mines.—It is reported from Shidzouka that a gold and silver mine has been discovered in a forest near Dohimura, Idzu province. Mr. Furihata applied to the authorities on May 4 for permission to undertake experimental work.

Chinese Lead Mines.—A Chinese merchant, named Yeung Po Hing, of the Kwong Tat Company, has sent a petition to the Agricultural, Industrial and Commercial Department applying for permission to open a lead mine at Fu Yung mountain, near Lin Shan, with a capital of $50,000.—*S. C. M. Post.*

Mongolia Gold Mines.—An agreement for working the gold mines in Kulun and Tukartunan, Mongolia, has been concluded between Russia and the Imperial Chinese Resident in Kulun, H. E. Yien-Tse. It is reported that the terms of the said agreement will be forwarded to Peking for approval.

Coal Car Shortage.—The Hokaido colliery owners are almost panic stricken on account of the incapacity of the Government railways to transport coal. At present there are 400,000 tons of coal awaiting transportation, and at least 3,800 tons are being daily produced. Even to transport the fresh output, 542 coal cars are required. The Government ran only about 300 cars, leaving 800 tons a day without the means of transportation. The collieries will therefore be compelled to greatly reduce the output and dismiss large numbers of miners.—*Japan Mail.*

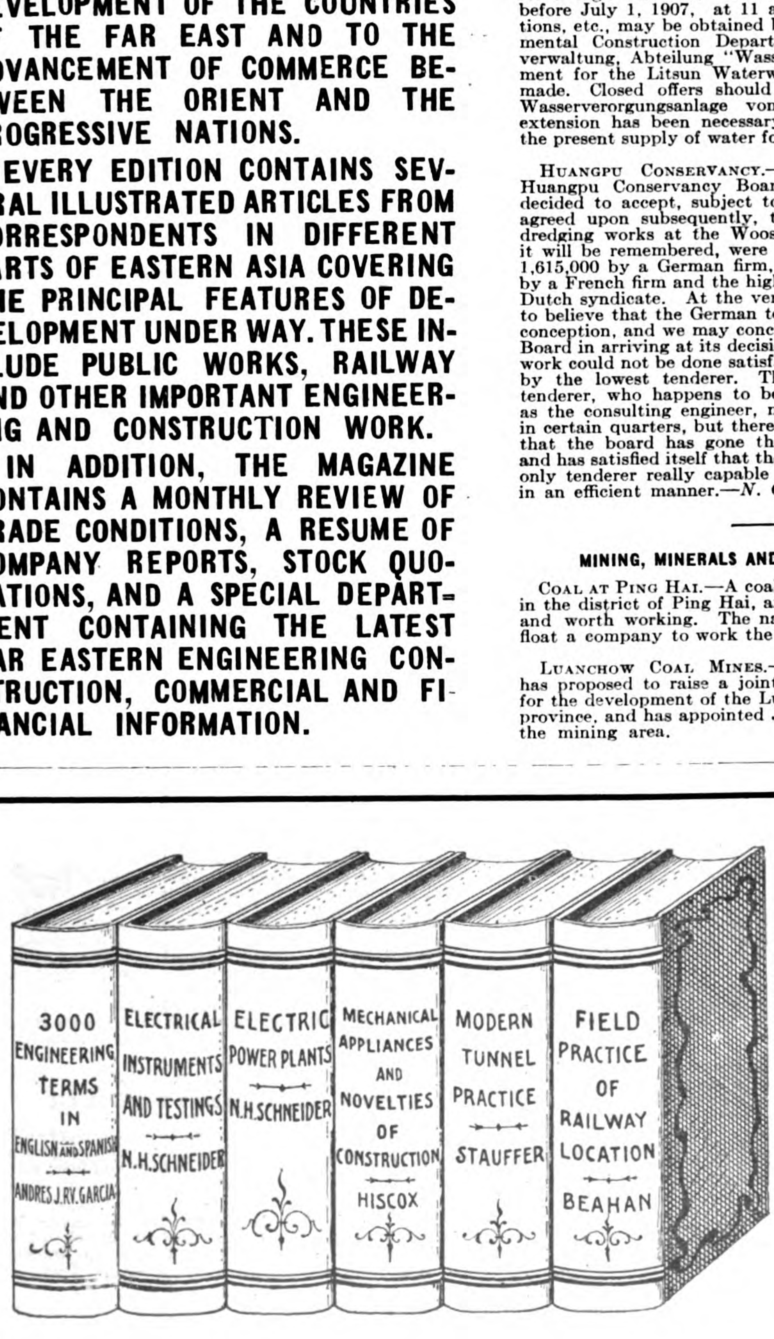
FINANCIAL AND MISCELLANEOUS

Shanghai International Exposition.—It is proposed to hold an international exhibition of commerce at Shanghai about the end of 1908. The China Association are the promoters.

Japanese Rubber Manufacturing Co.—A scheme is being promoted at Osaka jointly by a number of Japanese and foreigners to establish a rubber manufacturing company with 2,000,000 yen capital. The ground for workshops has already been purchased at Sagisu-mura, Nishinarigori, Osaka-fu. The greater part of the capital will be invested by foreigners.

Japanese Bank Amalgamation.—The promoters of the Hokoku Bank (10,000,000 yen capital) being organized by K. Hamaguchi and other influential business men of Tokyo, have opened negotiations with the directors of the Saiyen Bank (1,000,000 yen capital), the Hamamatsu Bank (500,000 yen capital) and the Hamamatsu Shinyo Bank (500,000 yen capital) at Hamamatsu in Shizouka prefecture, for amalgamation. The three banks held a meeting of Directors on May 12 when it was virtually decided to amalgamate.

American Exports to the Orient.—According to a statement issued by the Bureau of Statistics the exports from the United States to the Orient during the month of February showed an improvement over the corresponding month of 1906. The exports to Japan showed a decrease of $21,000,000 for the calendar year 1906, as compared with 1905, and the exports to China a decline of $28,500,000. During February the exports to Japan showed a gain of nearly $500,000 over those of February, 1906, while the reduction of exports to China was more than $1,000,000. The exports to British India decreased from $557,644 in February, 1905, to $525,864 for the same month this year, but for the eight months ending with February they increased from $4,057,041 to $4,886,755.



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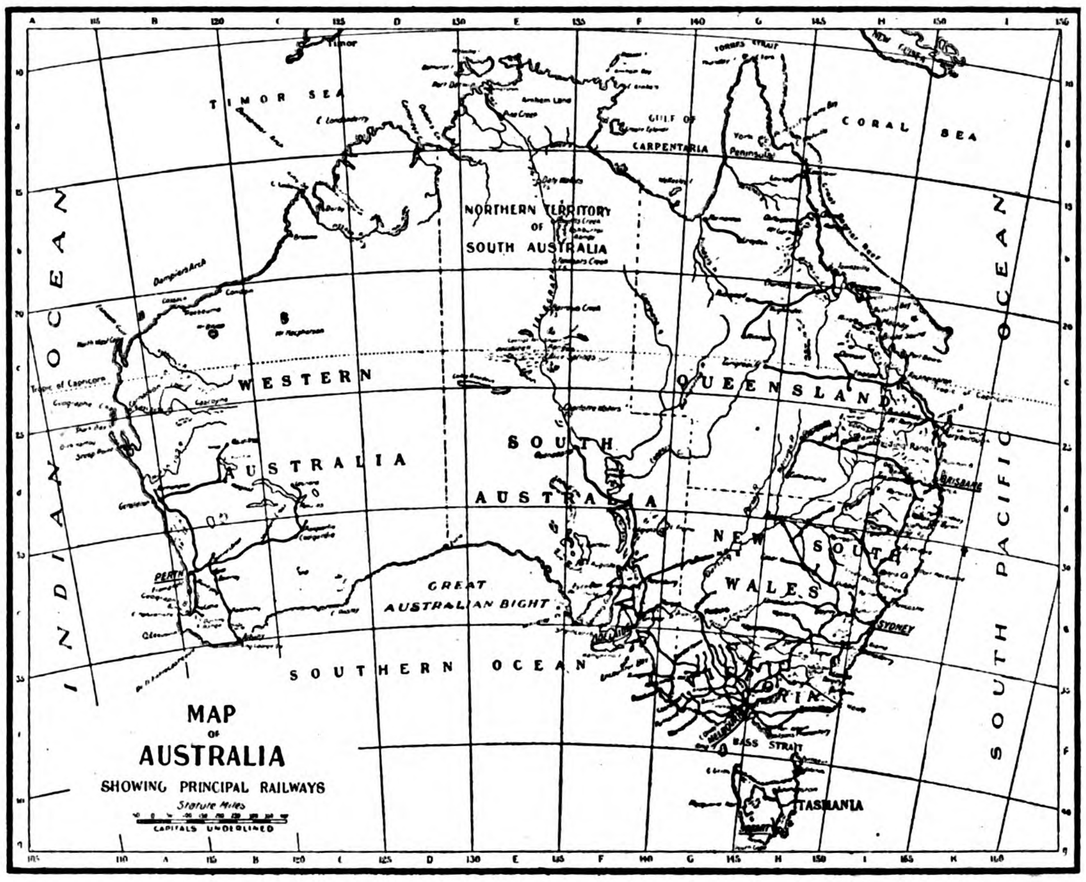
THE FAR EASTERN REVIEW

COMMERCE ❁ ENGINEERING ❁ FINANCE

VOL. IV. MANILA, P. I., SHANGHAI, AND YOKOHAMA, JULY, 1907. No. 2.

AUSTRALIAN RAILWAYS

The Australian railways are up to date in the completeness of their arrangements, whether for the convenience of the travelling public, or for the safe working of the lines according to the *Australian Traveler*. New South Wales has the greatest volume of business of the Australian systems, and its railway and tramway transactions—the two services being controlled by the one administration (the Railway Commissioners of the State)—have an aggregate earning of over



£5,000,000 per annum. The capital expended on the construction and equipment of the lines has been £47,295,159.

The railway system consists of 3,390 miles of line, and the iron roads fairly traverse the country from end to end, extending from Sydney to the Queensland border at Wallangarra (492 miles) on the north, to Albury (392 miles) on the Victorian border on the south, to Hay (460 miles) in the south-west, and to Bourke (508 miles) in the west. Numerous, and in some cases lengthy, important branches lead off from the main lines, and afford the facilities of railway communication to the great mass of the population of the State. The lines are laid to the standard gauge—viz., 4 feet 8½ inches.

There are in use and running on all the principal trains carriages of superior modern type on bogies; sleeping cars built on the Pullman and Mann types are in use on the long-distance trains, as well as lavatory and corridor carriages provided with lavatory conveniences for first and second class passengers, and as the roadbed is substantial and well laid, a journey over any part of the New South Wales lines can be taken with the greatest ease and comfort.

One particular feature in New South Wales is the magnificent caves that are open to inspection, and lie within reasonable distance of the railway. The Jenolan Caves, 35 miles from Mount Victoria, and approached by a good road, are most popular, and the magnificence of their subterranean caverns is said to vie with anything of their kind in the world. Other cave country exists—such as Wombeyan (from Bowral), Yarrangobilly (from Cooma or Tumut), etc., which, while equally interesting, have not had the same attention, owing to their not being so thoroughly opened up.

The Southern Hills are also conveniently situated, being reached from the southern line within 60 miles from Sydney. This district is not so elevated as the Blue Mountains, the highest point reached being at Exeter, 2,331 feet above sea level, and 93 miles from Sydney.

In this distance the magnificent reaches of the Hawkesbury River are crossed over by the railway bridge, 3,000 feet in length, the largest structure of its kind in the Southern Hemisphere; while a few miles further on, in crossing the divide between the main Hawkesbury waters and Brisbane water, a tunnel one mile two chains in length is passed through. This tunnel is said to be the longest in the Commonwealth.

The northern line from Newcastle is not only picturesque, but passes through the famous Hunter Rivey Valley, one of the most fertile districts in the State, rich in its production of corn and wine. The New England

(Continued on page 36.)

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

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SUGAR INDUSTRY IN CHINA

It would seem that while enterprising Chinese have succeeded in foreign countries in the sugar industry by utilizing modern machinery and methods, there does not seem to be any disposition on their part to introduce the same methods at home and develop the sugar industry in China where labor is available at a much lower price. Whether this disposition is warranted by the prejudices of the great mass of the Chinese people or the enterprising Chinaman finds it more advantageous to invest his capital and expend his energy abroad, the fact still remains that the Chinese sugar industry must continue to lag and foreign sugar monopolize the Chinese market unless something is done. Commenting on this rather remarkable phase of Chinese industrial life the Swatow correspondent of the *North-China Daily News* says:

"It is a pity that the Chinese will not endeavor to put the sugar industry on a proper basis. Their old obsolete methods are no good in these days of stern competition. Here we have labor plentiful and cheap, but for once that is not all; the cultivation and manufacture on a paying basis of sugar to-day not only requires cheap labor but also machinery, and that is where the Chinese fail to compete successfully with foreign sugars. Look at the enormous loss of juice every year owing to the obsolete methods of crushing the cane; why in an up-to-date mill the cane comes from the rollers as dry as a bone, but crushed here in the old-fashioned mills at least a quarter of the juice is lost. What is wanted is small steam mills placed in the various districts and for the farmer to sell his cane to the millowners at a fixed price.

"This is the system that has made the cane-growers in New South Wales and Queensland wealthy, and that without cheap labor. There is no district in the world that is more suited for cane-growing than this, with its magnificent rivers and its wonderful irrigation channels and its beautiful soil, and there is no better paying crop. Anyhow the officials are moving in the matter and let us hope something will be done and that soon, and if they'll take a tip from me they will get one of the Chinese who has made a fortune at the game of owning a small crushing steam mill in Australia or elsewhere (and there are a few hundreds of them) to give them a few wrinkles as to how the business is managed, and instead of the farmers losing thousands of dollars as in the past they will be making them."

This would seem to indicate that even China with its cheap labor finds that the sugar industry does not pay when only the crudest methods are employed in its manufacture. The same might be said of all sugar countries in the far east with the exception of the Philippines where labor costs about five times that paid in Java, China or Japan. While China with modern machinery might compete with Java on account of her cheap labor, the Philippines would find it impossible to find a market even should large modern mills be established in the islands on account of the high prices paid for labor.

This leaves China in a position to lead in the sugar industry should the proposed program of the Chinese officials be carried out. The enormous home consumption of China now supplied largely by Java offers all the encouragement necessary for the investment of the capital required to put the industry in China on a paying basis. Chinese labor is the cheapest and best in the world. All things being equal, so far as modern equipment and methods are concerned, the Chinese would have the advantage over any section of the far east in the matter of reliable labor at minimum cost, the most important element in developing a well established sugar industry in this age of keen competition.

THE MAN IN THE COSY ARM CHAIR

The true situation in the Philippines, and it might be said of the frontier of any nation in the Far East, is admirably reflected by the *China Mail* in a recent editorial which follows:

"Judging by the constant appeals that are being made by merchants in Manila for consideration by Congress, the visit of Congressmen and Miss Alice Roosevelt made some time ago under the guidance of Mr. Taft has not helped the islands any. From this party the merchants expected much. They hugged the fond belief to their souls that Uncle Sam would henceforth look with a more kindly eye upon the perspiring pioneers in the Philippines. Nothing has happened. Either the Congressional party carries no weight with Uncle, or the gentleman of the goatee, the star spangled waistcoat and striped pants reckons he knows what the Philippines want better than those in the islands do themselves. He does not! *It is the old story of the man in the cosy arm chair at home and the sweating white slave in the Colonies. The man on the spot is calculated to be an idiot. Mostly he is—for being on the spot.* However, the Manila merchants fed the Congressional party well and yet they still howl to be protected by having less protection. That seems paradoxical, but it sums up the situation—and incidentally shows that the way to a man's heart is not always through his alimentary canal. Perhaps the Congressmen were overfed and now woefully shake dyspeptic fists where they ought to throw bouquets. The Manila merchant has a hard row to hoe, but he is a strenuous agitator until Philippinitis attacks him. Then he sits down and murmurs the equivalent of Maskee!"

The Far East is just blossoming. From India to Vladivostock an era of remarkable development has been ushered in. The men who have blazed the trail have better prospect than ever of seeing their dreams realized. There is opportunity for all and in this transformation work there is no room for jealousies. Since we need not expect substantial support from the proverbial occupant of the cosy arm chair at home in Europe and America, we can at least pull together on the frontier so that all, irrespective of nationality, may benefit. With the right spirit of co-operation leavening the whole the foreign settlements of the Orient would yield a powerful influence in counteracting the false impressions given credence in Europe and America, and in confounding the detractors of Eastern Asia.

SPREADING FALSE IMPRESSIONS

We are indebted to the *London Times* for the views of its correspondent in New York on the general attitude of the American people towards the Philippines. The remarkable feature of this gentleman's conclusions is the assurance with which he presumes to reflect the sentiment of all the different elements to be found within the boundaries of the western republic. Writing from New York, where egotism flourishes more or less in certain circles the conclusions arrived at by the *Times* man sound very amusing to the great majority of the American thinking public who are not consulted when the Thunderer's emissaries in the eastern American metropolis seek to enlighten the British brethren at home. We take pleasure in publishing the following quotation from the *Times* to which the New York correspondent unblushingly admits authorship:

"There is no episode in the history of their country which Americans now look back upon with more regret than the war with Spain. The newspapers do not often care to give expression to this feeling, but it is practically universal from the Atlantic to the Pacific. Universal also is the belief that the Philippines are the biggest white elephant with which the country has ever been burdened, and that the islands will never be anything more than a burden. If they could be handed over to Japan or handed back to Spain without loss of national dignity it would be done. This, of course, is impossible, but the heartfelt regret of the American people for the Spanish adventure can be and is manifested by the offer of friendship to Spain, which it is hoped Spain will accept."

The American people's sense of humor must certainly be dangerously exposed when such comment is taken seriously by a journal with a reputation for real seriousness.

It might be remarked in passing however that even New York where the *Times* correspondent's hat is hung up has faith in the future of the Philippines. New York capitalists are investing $30,000,000 in Philippine railroads and when the Philippine government desires

to float a loan it takes precedence in the money market over all other bonds and brings a handsome premium. Not only is this true but there are about 10,000 foreigners and Americans in the Philippines who have faith in the future of the American possessions. Neither the capitalists of New York and London nor the foreigners and Americans in the Philippines, who are well informed and interested, indicate in any form that they believe the Philippines to be a white elephant on the hands of the United States. And if not a white elephant in the possession of the United States in the opinion of those directly interested, it is difficult for us to accept the conclusion of the *Times* correspondent in New York, seditious as our attitude may appear.

NEW INDUSTRY FOR HONGKONG

The establishment of a plant for the manufacture of high grade dry batteries at Hongkong by the Oriental Battery Co. introduces a new industry in the Orient and adds to the prestige of Hongkong as a manufacturing center. Mr. F. H. Thompson, the well known electrical engineer of Manila, is president and general manager of the company. Mr. Thompson recently returned from a trip to the United States where he made all his arrangements to start operations at an early date.

Mr. Thompson has purchased at great expense two of the best formulas available, and as the dry battery business is operated as a secret process in the United States where most of the dry cells used at the present time are manufactured, and with headquarters in a free port he will be in a position to meet all competition in the Orient.

It takes three months from the time the American cell is made to get it to the Orient, consequently it is "old" when it gets here and is practically of little value, the hot, moist sea voyage having deteriorated its working value to 20% of its former power. The consumption of dry cells is increasing and to be able to obtain fresh first-class cells direct from the manufacturer will be a step in the right direction. The company announces that only the highest class of material will be employed in the manufacture, French carbons and German chemicals to be imported especially for this work.

A small supply is expected to arrive in Manila in a few days and all the experimenting will be conducted there in order to ascertain the best proportions to be used in the manufacture to secure the best results in this climate. A large shipment of materials has been ordered and is being assembled. It is expected shortly to arrive in Hongkong where the factory will be started immediately. It is the purpose of the company to establish branch offices in Japan, China, Straits Settlements, India, Philippines, and Australia.

The selection of Hongkong for the establishment of the factory was influenced by the fact that it is a free port and this would place the manufacturer at an advantage in competing with the American product.

NEW HONGKONG NAVAL DOCK

The completion of the new naval drydock at Hongkong is the result of seven years of well directed effort in rounding out the extensive plans of the British government for the extension of the naval yard there and improving its facilities to meet every possible condition. From time to time since the inception of the extensive works over $6,000,000 have been appropriated for the purpose and the christening of the naval dock recently demonstrated the successful completion of the most important section of the improvements. The new dock is 550 feet in length; 95 feet wide at the entrance with 30 feet over the sill at low water and is large enough to accommodate the largest battle-ship afloat. It is 70 feet wide on the floor and 120 feet at the top. The floor is built of combined concrete and masonry fourteen feet in thickness and the side walls are 37 feet thick at the bottom and ten feet thick at low water level.

The entire scheme for the extension of the navy yard included an increase of the area from the original four and three-quarters acres to 39 acres while the new tidal basin is now spread over an area of nine and one-quarter acres and embraced the reclamation of the foreshore from Murray road to the war department. The basin referred to has a depth at low water of 30 feet and a wharfage 2900 feet in length.

The early construction was delayed for the reason that it was difficult to secure satisfactory foundations. Borneo piles fifty feet long were imported for the purpose and this further delayed the work. However all obstacles were overcome by the persistent contractors. The concrete blocks used were made at Matautok; over 280,000 feet of dressed stone from the various quarries operated by the contractors were used, and of this 60,000 feet went into the construction of the seawalls.

All that remains to be done to put the finishing touches to the dock and make it available for use is the removal of the large cofferdam built to enclose the foreshore and some dredging in front of the dock. It is announced that this work will be completed in at least seven months when the admiralty will take the entire extension over from the contractors. In the meantime the admiralty will have to complete the construction of the pumping station and provide a plant to operate the dock before it may be utilized. It will also be given some time to settle before it is put to use in view of the character of the ground upon which the foundations are laid.

The contractors, who have so successfully overcome every obstacle and brought the work to a successful conclusion, are Messrs. Punchard, Lowther & Co. A. J. Williams, A.M.I.E., assisted by R. H. King, A.M.I.C.E., is the engineer in charge of this important undertaking.

MANILA AS A SHIPBUILDING PORT

"It was not to be expected," says the *Hongkong Telegraph*, "that the shipbuilding and ship-repairing firms of Manila would be content to view with equanimity for any length of time the passing of valuable and remunerative contracts from the local dockyards to those of other countries, and that these firms are awakening to a realization of their lost opportunities is apparent from an editorial which appears in the latest issue of the FAR EASTERN REVIEW. Whenever it has been found necessary to call for tenders for the construction of the mosquito craft required by the Insular Government, for repairs to transports, or for the periodical overhauling of the U. S. squadron in the Pacific, the offers submitted by the shipbuilders of Hongkong, Singapore and Shanghai have been given special consideration. But the military and naval authorities have not been blind to the claims of the insular dockyards to a share in the shiprepairing work required by the Government. If the Manila yards were in a position to cope with the demands of the authorities and carry out the larger contracts in an expeditious and efficient manner, there is not the slightest doubt that foreign competition would not stand the ghost of a chance against the local rivals. As it is the Manila dockyards exist in name alone; they may be capable of utilising their resources in the most surprising fashion, but these resources are extremely limited. When the shipbuilding firms in America's possession gnash their teeth in jealousy that foreigners should snap up the rich contracts which should rightly belong to the American colonists they are apt to forget that shipbuilding and engineering in the three British centres of manufacture in the Far East have been reduced to a fine art. Enormous sums have been expended on the laying down of plants which in many cases are seldom brought into use once every twelve-months; yet in order to be prepared to meet every emergency, to provide for the wants of the great liners which arrive from Europe and America, the policy of "aye ready" has been followed to its extreme bounds, with the result that no difficulty baffles the dockyards, and no demand be it never so unique is classed as impossible. The Hongkong and Whampoa Dock Company, to take a concrete example, have devoted millions to the equipment and plant-efficiency of their yards, and have gathered together a staff of managers, mechanics, engineers and workmen the product of whose combined skill is in no way inferior to anything that hails from the Clyde or the Tyne. That money embodied in docks, machinery and labor-saving appliances has been sunk in Hongkong and it constitutes one of the chief assets of Hongkong. Much of the highly-specialised machinery installed at Kowloon must necessarily represent a dead loss to the company from the standpoint of remunerative financial returns, but if the concern is to maintain its reputation and proved standard of efficiency it must be qualified to undertake every possible combination of technical requirements. It is an old story now that the Kowloon docks created a record when they were called upon to dismount and replace the big guns of H. M. S. *Albion*, but such a feat was only rendered possible by the foresight of the managing staff in being prepared to fulfil an order which may not recur again within the next generation. When the Manila shipbuilding companies find themselves pitted against competitors of the calibre of the Hongkong and Whampoa Dock Co., it is no discredit if they fail to come out on top. But to cauterise their wounded feelings with the assertion that the principal British dockyards in China are in receipt of special favors from their Government, and are accorded extra facilities in carrying on their purely commercial undertakings, is as ridiculous as it is absurd. Whatever has been done by British engineering companies in the Far East has been done on their own initiative, and not infrequently in face of direct Government opposition. Here in Hongkong the Admiralty will at no distant date be in a position to ignore the Kowloon docks, and the same may be said of Singapore. If the Manila firms are determined to enter the race for shipbuilding contracts all the advantages are on their side. Their chief handicap at present is the duty which a short-sighted Government has imposed on imported material, but that is only a temporary drawback, for an enlightened democracy is bound to recognize the folly of penalising local industries for the benefit of outsiders. The FAR EASTERN REVIEW, in dealing with this question, recognizes the fact, also, that the exclusion of Chinese skilled labor has a detrimental effect on shipbuilding in the Philippines, but perhaps the dusky Filipino may yet prove his worth and show himself to be possessed of all the virtues which his sponsors claim for him. The ultimate position attained by the dock firms of Manila must depend largely on the people themselves, and all the caviling and hints of prejudice and unfounded assertions will not help them a single iota. The FAR EASTERN REVIEW has taken up their cause, and seeks to explain away the inability of Manila firms to undertake those important ship-repairing contracts which have gone to Hongkong or Singapore by references to official preference and unequal competition, but the best advice to the ambitious yards of the Philippines is to follow in the furrow that has been ploughed for them by their foreign competitors, whose costly experiments and hard-earned experience are at their command. When they can prove that their plant, accommodation and general facilities are equal to those at the disposal of their competitors and that they are capable of producing work which will compare in every respect with that of other Fas Eastern dockyards, then the doom of the foreign competitor in the Philippines is sealed But if the Manila firms are bent on success they must be up and doing for themselves for there is no standing still in these days, and fortune seldom comes to those who are filled to the exclusion of all else with a super abundance of envy and jealousy."

THE ESPERANTO CONGRESS

An article in a Berlin paper on the Esperanto congress, which will take place at Cambridge in August, says: "There will be more than three thousand delegates present representing nearly every country in Europe, and the proceedings will show what progress the universal language has made. In order to show one feature which has not been largely dwelt upon, a Shakespearian tragedy has been translated into Esperanto and will be performed while the Congress is in session. For practical purposes the policemen and the waiters in the large restaurants will learn the language, so that they may converse with the delegates from other countries"

AUSTRALIAN RAILWAYS

(Continued from page 33.)

district, on the highway between Sydney and Brisbane, offers magnificent scenery. The rails on this line reach an altitude of 4,500 feet.

South of Sydney, along the coast, is the famous Illawarra district, long known as the "Garden of the State." Shortly after leaving Sydney the line commences to rise from Cook's River, and has a splendid overlook of Botany Bay; then, crossing George's River, it skirts for miles the magnificent heritage, nearly 40,000 acres, reserved for the people, and known as "The National Park."

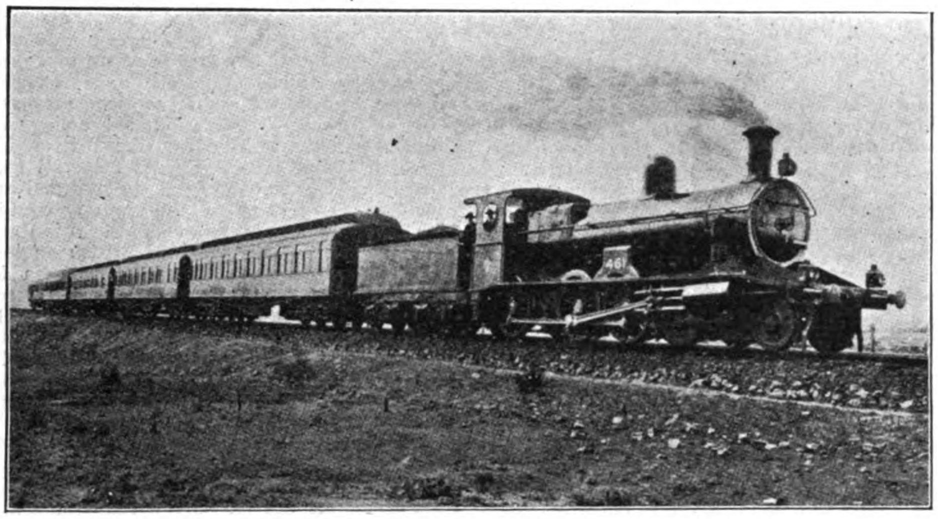
In regard to business travel, the train accommodation and train services are both excellent, and the suburban business alone in and out of Sydney runs into big figures, the suburban passenger journeys made during the past year numbering 33,347,246. There is also a big volume of business, although not so large, in and out of Newcastle. Most popular trips are run between the principal capitals—Adelaide, Melbourne, Sydney, and Brisbane—express service being run throughout. The distance between Sydney and Melbourne is 582 miles, and the journey, with a number of stops, is accomplished in 17½ hours. Considering the nature of the country that has to be passed over, the lines having to surmount gradients as steep in places as 1 in 30, where the Southern Hills are climbed, the running is excellent. It is also conveniently fixed so that the greater part of the journey is accomplished during the night, a minimum interference with business therefore being made. To Brisbane the mail trains accomplish the journey (725 miles) in 28 hours, and as in the case of the Melbourne journey, the train has to pass over a number of severe gradients, the maximum altitude on this line being 4,500 feet above sea level, while there is a good deal of intermediate station business to be done. The accommodation provided, however, is of the most comfortable character, Mann and Pullman type sleeping cars being available on the trains, while the Melbourne express is a corridor train throughout.

A word or two may be mentioned as to the freight business of the state which realized last year on the railways £2,628,076 and covered the carriage of 7,400,658 tons of goods as well as 5,071,214 head of live stock. The rates appear reasonable to the producer as for instance all the agricultural products are carried from the interior to the sea at the rate of 14s. 2d. per ton for 500 miles. The railroads are responsible for the development of the interior and at the terminus at Darling Harbor splendid facilities have been provided for the facilitating of freight handling.

RAILROADS OF VICTORIA

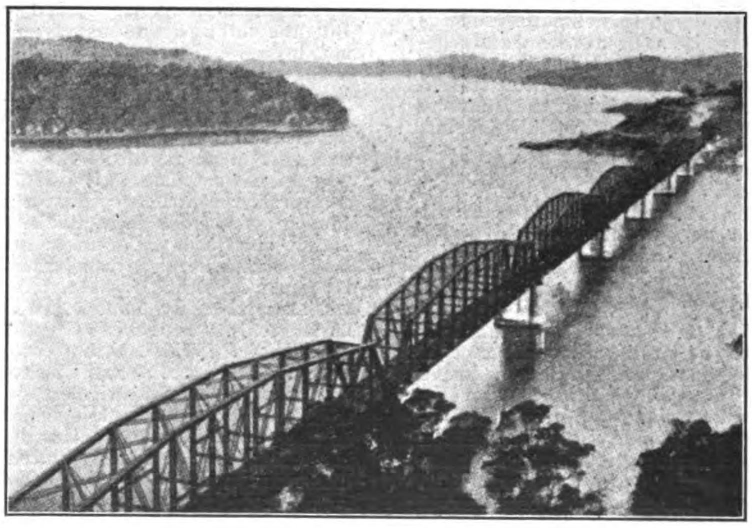
Victoria, with its area of 87,884 square miles, equal roughly to that of England, Wales, and Scotland, is, with the exception of Tasmania, the smallest of the States of the Australian Commonwealth, but has a length of 3394 miles of State-owned railways in active operation, giving her a far greater proportion of mileage to area than any of the other States.

Melbourne, the splendidly laid-out and substantially-built capital city, is encircled with a network of lines forming a comprehensive suburban system and providing cheap and frequent means of intercourse between the suburbs and the metropolis.



SYDNEY AND MELBOURNE EXPRESS (Sydney to Albury Section).

During the year ending 30th June, 1906, close upon 60,000,000 of passengers were carried by suburban trains, notwithstanding the fact that during the same period 54,000,000 passengers travelled by the cars and omnibuses of the Melbourne Tramway Company, a very large proportion of whom were drawn from districts where the cars ran in direct competition with the trains instead of acting as feeders to them.



HAWKESBURY RIVER BRIDGE ON THE NEW SOUTH WALES RAILWAY SYSTEM

BRITISH NORTH BORNEO RAILWAYS

Consul Lester Maynard reports from Sandakan on the two railroads to be constructed in British North Borneo. Mr. Maynard writes:

"The surveying expedition across the island of Borneo arrived at its destination, Surodong, at the mouth of the Surodong River, on the southeast coast of British North Borneo, on November 23, having been in the jungle for seven months, during which time they covered about 210 miles. The expedition left Jessleton on May 1, 1906, its object being to determine the possibility of building a railroad across Borneo, and by prospecting for minerals and observing agricultural possibilities to determine the advisability of building the road. Four Europeans accompanied the expedition, two for the Government and two civil engineers representing the London parties who will have the contract for building the road, and a representative of the British Borneo Exploration Company (Limited), which has the sole mineral rights for British North Borneo. Large coal measures were discovered about 40 miles from the east coast, and the road will be built to them from Surodong. Although it is possible to build a railroad entirely across the island, it would not be practical, as the country is a vast, dense jungle, very thinly populated.

"The railroad from Jessleton to Beauford was constructed by the same firm, and 30-pound American (Carnegie) steel rails were used. It is claimed that these are light, and that 45-pound rails would give more satisfaction; however, in other respects there was no complaint, and the American steel rails should be used for this new road.

"The civil engineers are now starting a survey for the railroad from Tanjong Batu, on Marudu Bay, in the north, to Sandakan. This road will be about 150 miles in length and will be constructed by the same firm. A company has been formed to build this road and will receive from the British North Borneo Government alternate blocks of land, 40 miles square, along the entire route. This road will pass through large deposits of iron and its northern terminal will be at Tanjong Batu, where the manganese mines are located. This second expedition will be along the line in touch with the seacoast, where supplies can be sent ahead and should take about three months.

"The first expedition passed within one mile of Dutch territory and penetrated a country never before entered by a white man, suffering many hardships and dangers from the savage tribes encountered."

A SEA LEVIATHAN

The *Adriatic*, the newest and greatest of the White Star liners, arrived at New York on her maiden voyage from Liverpool on the 16th ultimo with 2,294 persons on board, including 700 cabin and 1,802 stage passengers. The *Adriatic*, says a New York dispatch, is the most complete ocean traveller afloat. Her length over all is 725 feet 9 inches; breadth, 75 feet 6 inches; depth 50 feet; gross tonnage, 25,000; displacement, 40,000 tons; accommodations for 3,000 passengers and a ship's company of 350, eighteen compartments and space for second cabin and steerage passengers that would have been luxurious a few years ago for first saloon passengers. The *Adriatic* is not built for speed, but for comfort. She is fitted with all the conveniences found in most modern hotels—Turkish baths, massage rooms, photographic dark rooms, elevators, gymnasiums, and everything else one can imagine for comfort. The commander of the new *Adriatic* is Captain E J Smith, R.N.R.

IRRIGATION IN THE PHILIPPINES

When the Philippine government concluded the purchase of the Friar lands of the archipelago, it took over a number of extensive irrigation systems in Cavite, Bulacan and Laguna These systems cover an area of approximately 70,000 acres and represent the most desirable part of the agricultural lands included in the purchase

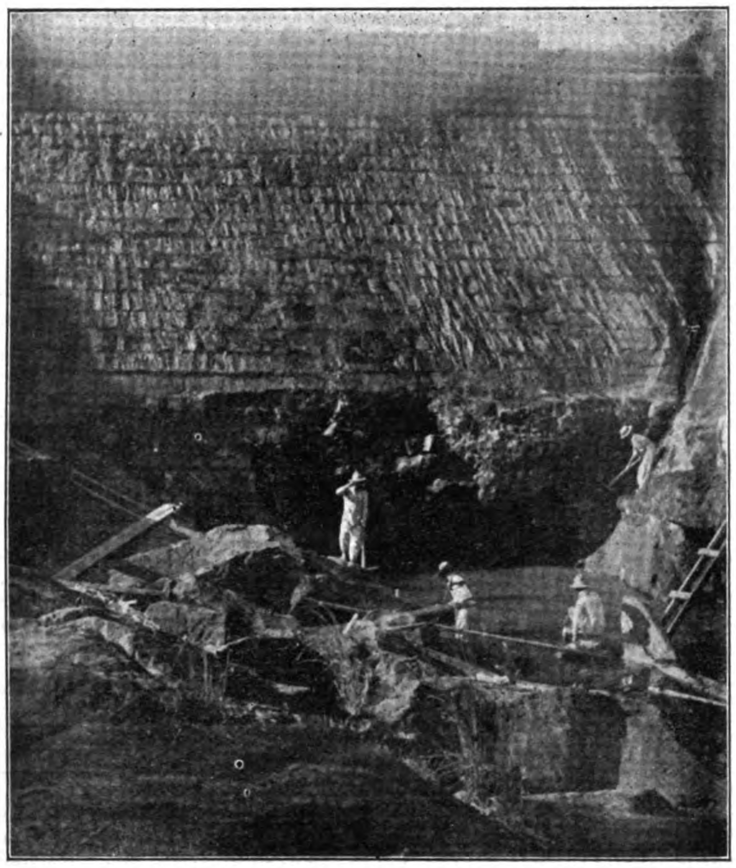
In addition to these irrigated areas, there is the area in the northern systems where the Igorots thrive on their terraces built on the sides of the mountains. These people are completely isolated, yet their system of irrigation has been in operation for centuries and long before any Christian influence had reached the islands. It is difficult to make an estimate of the area covered by these scattered systems as they dot the mountain sides wherever a trail may lead, and since the Igorots are primarily an agricultural race, it might be said that they have under the control of the different hill tribes more extensive and substantial works than may be found anywhere in the world outside China and Japan where similar systems are to be found. When the Bureau of Lands assumed charge of the Friar lands in 1905, it was found that as a result of the insurrection many of the irrigation systems on the different estates were out of repair and the Bureau of Engineering made a careful survey with a view to restoring them to their former condition and add such improvements and extensions as would increase the production of the estates affected.

Mr. H. F. Labelle, assistant engineer, was detailed for this work and an exhaustive report with recommendations were submitted. The recommendations made have been generally followed and almost every system involved has received more or less attention. This work has been under the direction of Mr. Ernest J. Westerhouse, district engineer of the Bureau of Public Works. Some idea of the work may be secured by a reference to his report on the irrigation system of the Imus estate and the Naic estate, both situated in the province of Cavite, as well as those in Laguna. The Imus estate covers an area of almost 46,000 acres and of this approximately 23,000 acres is included within the area under irrigation. The report, dated July 7, follows:

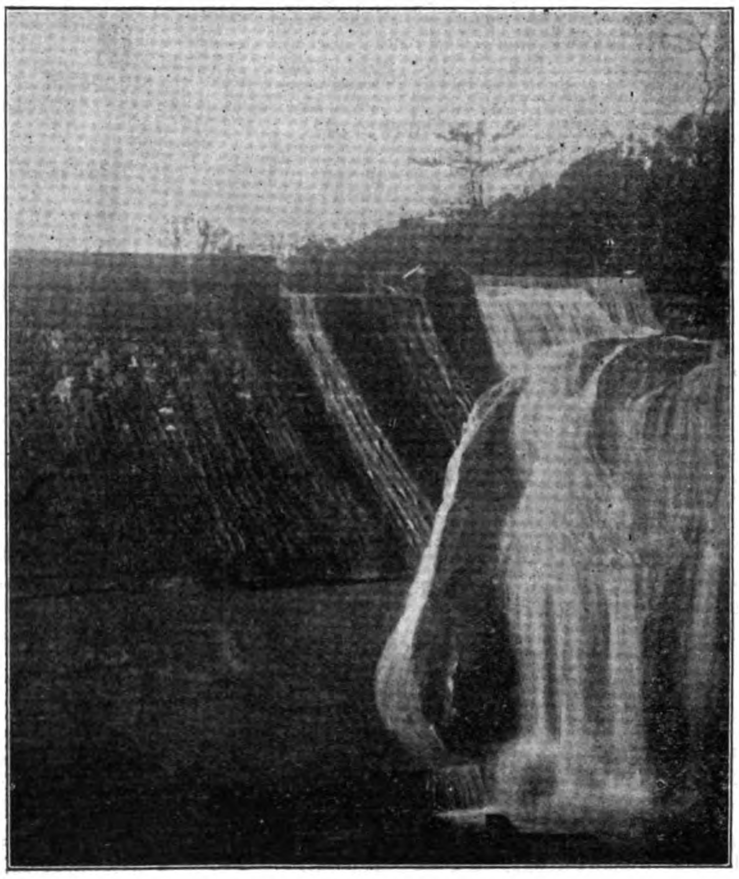
"I have the honor to report the completion of the repairs to the irrigation system of the Imus Estate, including the Molino Dam and Tunnel, the Marcelo Dam and the Julian Dam.

"The amounts estimated for these repairs were as follows:

Molino Dan & Tunnels	₱2000.00	by Mr. Labelle.
Marcelo Dam. . .	1025.00	,, ,, Westerhouse
Julian Dam	2100.00	,, ,, ,,
Total. . .	₱5125 00	



SAN JUAN DAM, CALAMBA, LAGUNA, P. I., PREVIOUS TO BEING REPAIRED.—DEPTH OF WATER 18 FEET



SAN JAUN DAM, CALAMBA, AS REPAIRED WITH REINFORCED CONCRETE CONSTRUCTION

"The actual cost of the work as completed, being in accordance with plans and specifications as previously approved, is as follows:

Labor, materials, etc. (including 200 Bls. cement	₱4777 41
Superintendency	290.88
Total.	₱5068.29

MOLINO DAM AND TUNNEL.

"Repairs to the dam proper were of a very light nature, including the surfacing over of disintegrated places over the superior crest and exterior slope, patching up walls of the intake, clearing the masonry of vegetation and other minor repairs. The most extensive work was done on the tunnel and main ditch. The latter was cleared of brush and undergrowth and the accumulated silt and caved in matter removed for a distance of 1,000 meters. Some rubbish was removed from the tunnel, although as a rule the tunnel was fairly clean. At the outlet to the tunnel the old adobe arch had caved in for a distance of about ten meters. This section was repaired by the construction of a concrete arch over all, 6″ thick at the crown and 12″ thick at the haunches. The concrete was made of an inferior grade of gravel (the only material available) and its sectional area increased accordingly.

MARCELO DAM.

"The site of this dam is in a gorge cut through solid adobe stone with almost vertical walls. A pocket had apparently worn into the stone bed of the stream over which the dam was constructed, the space being filled in with rubble masonry laid in lime mortar, containing about 130 cubic yards. The mortar disintegrated and the material gradually scoured out to a point within six feet of the face of the dam which undoubtedly would have resulted in the destruction of the entire dam but for the fact that the reservoir originally formed by the dam had filled up with gravel and soil to within a few feet of the dam head

"Suitable material for concrete could not be secured without great expense and the remoteness of the place made cement or lime exceedingly expensive owing to the long haul over a poor road for part of the way. To economize on concrete a reinforced concrete apron was designed to span the opening, supported at the toe of the dam by a concrete wall 12″ thick and 9 feet high, protected on the down stream side by the natural adobe stone. At the intersection of the exterior slope with the apron a reinforced concrete beam was thrown across the opening with a clear span of ten feet. To guard against further disintegration of the old masonry face a concrete wall five feet thick was built up against it with a roof extension to the beam, thereby also protecting the overhanging masonry of the exterior slope.

"For the beam and apron a mixture of 1 cement and 4 unscreened gravel was used reinforced with 1″ and ⅝″ plain rods, respectively. All other concrete consisted of 1 cement and 6 unscreened gravel. Bamboo was used almost entirely for false work and owing to its little value was not removed.

"The entire dam was cleared of all vegetation and all disintegrated parts were plastered over with cement mortar.

"From the intake the main ditch and tunnel were cleaned out and two sections with a total length of twelve feet were arched over with concrete.

JULIAN DAM.

"The dam itself is in a fairly good state of preservation. All vegetation was removed from the masonry and disintegrated surfaces plastered over. The crest of the spill-way is but about four feet below the elevation of the surrounding country and not being able to carry all the water in cases of a very heavy flood the water worked its way round the end of the dam from a point on the main ditch about 100 feet below the intake returning to the stream just below the dam. In falling over the bank of the stream the erosion became so great that it threatened a new channel leaving the dam high and dry. To overcome this a retaining wall was extended out from the end of the dam to a point well beyond the place of overflow, keeping the water within the bounds of the main ditch. The retaining wall was constructed of concrete consisting of 1 cement and 6 unscreened gravel, with a total length of 95 feet and containing about 900 cubic feet of concrete. The average cost of concrete on the three dams, not including superintendency, was ₱23.35 per cubic yard."

On the Naic estate the irrigation system which covers an area of over 5,000 acres all the repairs have been completed, and in a recent report Mr. Westerhouse announces the repairs to the Biñang estate and the San Juan estate dam on the Calamba estate, Laguna. His report follows:

"I have the honor to advise you that in addition to the reports on work previously submitted, Bancud Tunnels Jan. 4th, 1907, Naic Estate April 12th, 1907, and Imus Estate July 7th, 1907, two projects have been completed under contract, Biñang Hacienda Building Repairs and the San Juan Dam Repairs.

"Repairs to the Biñang Hacienda Building consisted of the replacing of 96 sheets of G. I. roofing with corresponding purlins on the Camarin; light repairs to the roof of the Hacienda Building proper, light repairs to the cornicing and the replacing of 25 pieces of guttering and light repairs to a section of exposed tile flooring where one of the beams had decayed. The total contract price was ₱435.00.

"The San Juan Dam was repaired in accordance with plans and specifications approved by the Director of Public Works, the contract price being ₱1889.00. The location of the dam is in a gorge of solid adobe stone with a narrow deep channel worn into the stone bed of the stream about twenty-four feet deep. The masonry of the old dam gradually disintegrated in this channel seriously undermining the dam and threatening its destruction. The span of the channel averaged about 16 feet with vertical walls of hard adobe stone. A curved concrete apron was designed supported by three concrete beams across the channel, one at the toe of the dam, one at the intersection of the exterior slope and the apron, and one at an intermediate point. The concrete course of the apron was reinforced longitudinally with ½" plain rods spaced 1' on centers and transversely with similar rods spaced 2' on centers.

"The concrete for the apron proper was 6" thick and consisted of 1 cement and 4 unscreened gravel. The concrete for the beams was of the same proportions, each beam being reinforced with five 1" plain soft steel rods. An interior wall was constructed for the protection of the old masonry remaining intact with an overhead roof construction for the protection of the overhanging masonry from the wall to the beam supporting the upper end of the apron. A 12" toe wall was also constructed immediately below the lower beam for the protection of the masonry below the apron.

"A number of minor repairs were made to the flush gate and masonry surfaces of the dam.

"This makes the total expenditure on irrigation works for the fiscal year as follows:

Bancud Tunnels	₱8247.03	Malabon Estate
Balayung Dam & Tunnels..	3680.35	Naic Estate
San Juan Dam	1889 00	Calamba Estate
Molino, Marcelo and Julian Dams.......................	5068.29	Imus Estate
Biñang Hacienda Building.	435.00	Biñang Estate
Total......	19319.73	

"The above does not include superintendency on projects investigated and reported on without work being inaugurated and 200 Bls. of cement delivered for work on Tunnel No. 5 for which no bills have been rendered to date. These items will bring the total expenditure to about ₱21,000.00, leaving a balance of about ₱4,000.00."

In addition to these estates some repairing has been done on the Santa María de Panda and the Lolomboy estates in Bulacan and on the irrigation works on the estates of San Francisco de Malabon and Santa Cruz de Malabon in Cavite. The area covered by the irrigation systems is distributed among the different Friar Land estates as follows:

Imus, 23,000 acres; San Francisco de Malabon, 14,000; Santa Cruz de Malabon, 12,000; Naic, 5,000; Calamba, 700; Santa María de Panda, 12,500. All these figures are approximate as all the property included in the transfer has not yet been surveyed.

In forwarding the recommendations for the repairs of these works with his endorsement, Director J. W. Beardsley called attention to the fact that the irrigation systems are essential to the cultivation of the respective estates and the value of the works extended into the millions as they stood in 1905. He also added the following remarks:

"Attention is respectfully invited to the following general needs of the government along the lines of irrigation:

"An accurate knowledge of existing works of construction and the importance of an effective system of maintenance and extension of such works to the agricultural development of the islands.

"A study of the Spanish laws now in force relating to the use of irrigation and the customs relating to the use of the irrigation waters, which, on account of usage become equivalent to legislative enactments.

"The drafting of revised laws which shall promote irrigation and protect the rights of landowners and water users. Such laws should be based on the best practices prevailing in the United States, modified by local usages, laws, and customs."

These recommendations have been followed generally and as the demand for extension of the works increases the government is prepared to meet it.

Some idea of the general character of the country where the irrigation systems are in operation and the character of construction may be gathered from the following excerpts from Mr. Labelle's report.

"The lower part of the province of Cavite extending from on the east coast of Manila Bay from Bacoor to Maragondong and stretching some fifteen miles inland, is a section of flat rolling country rising gradually from the bay to elevations of from 600 to 900 feet above the sea. This whole area is cut by numerous rivers flowing from the highlands and running mostly all from south to north, in such a way that they are parallel with each other. Between these rivers and arroyos the land is arable and appears to be of good quality.

"The country rock can be divided into two general classes. The familiar 'tuff' met almost everywhere in central Luzon and a kind of half baked clay which cannot be traced to volcanic origin.

"The rivers of Cavite offer exceptional facilities for the study of the 'tuff' formation as the beds of the rivers have mostly all been formed by denudation and therefore the stratification of the country rock can easily be made.

"Lime mortar seems to have been used exclusively but hydraulic lime mortar is seldom met in the construction of these dams. Only in exceptional cases is Roman cement seen.

"Notwithstanding the general use of common lime mortar in the dams of Cavite leakage through the dams seldom exists and the leaks met may have been caused by dislocations produced by earthquakes. These earthquakes, however, never caused any considerable damage to the dams in the Cavite district. Only one dam, the Marcelo, has developed any crack and this may have been caused by a settlement of the masonry just over a cave excavated under the dam by the falling water, for the crack is in that part of the dam just above the cave. There is no leakage from the crack and it may be but superficial. The experience in Cavite dams shows that there is nothing to fear for their stability on account of earthquakes and that it is not necessary to adopt an additional factor of safety on that account.

"The main deterioration in the dams the writer has seen appears to be met in the aprons of the dams with curved profiles, in fact there are very few aprons which will not require considerable repairs.

"Above each dam and in close proximity to it there issues a tunnel or canal which conveys the water to the main irrigation ditch, usually located by the side of the main roads and invariably on the west side of the same. These main ditches are generally supplied by more than one river. Another way of conducting the water across the country is by conveying the water from one river over several others by means of aqueducts, to the point of distribution, the waters of the rivers spanned being used farther down the country and running into other dams.

"The dams of Cavite offer a great variety of profiles. The section at least in the larger dams is always generous. With but one exception the downstream slope of dams is invariably ½ to 1 or over.

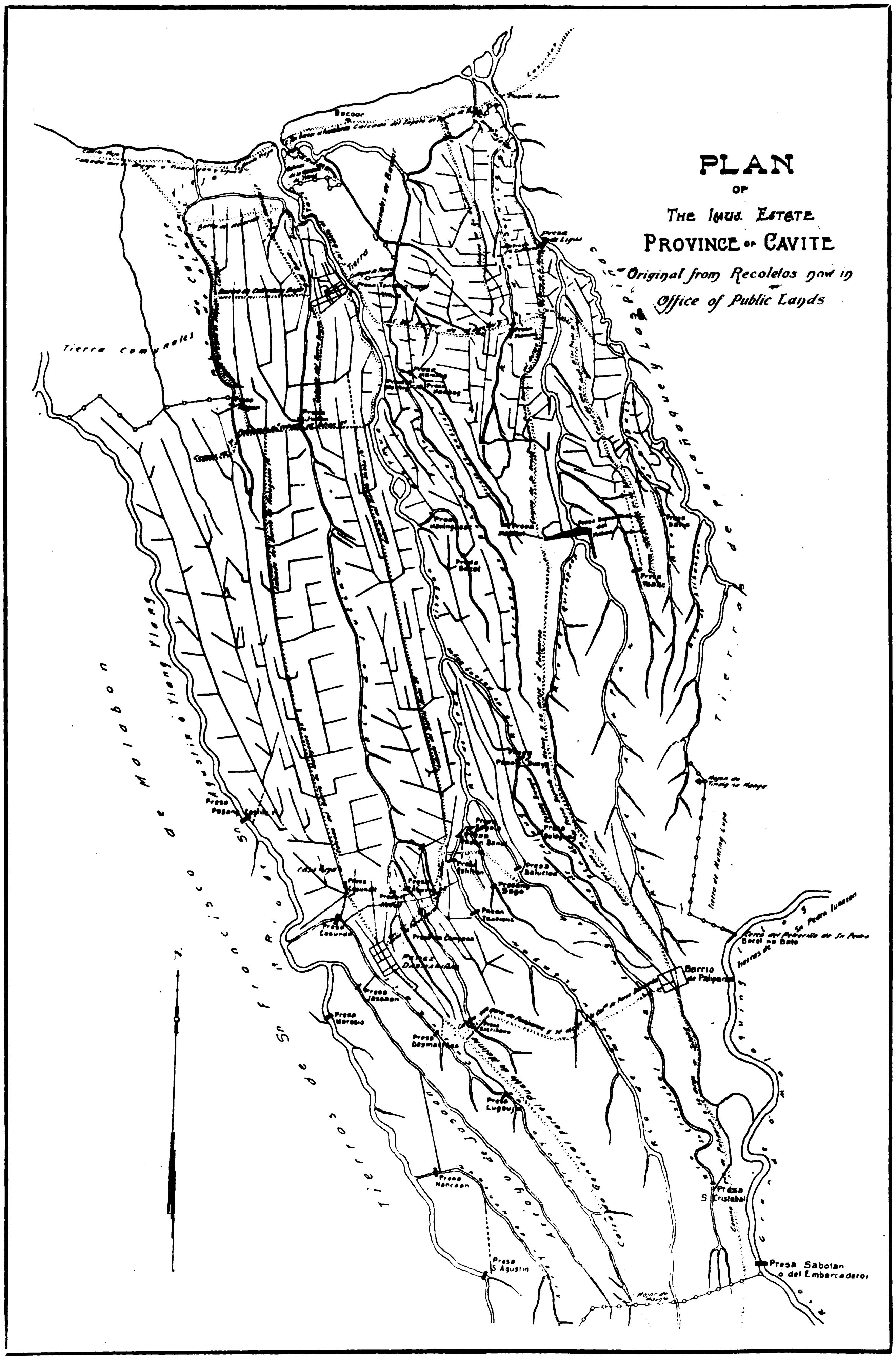
"The dowstream face is either stepped, straight or with the ogee profile, or rather a straight face with a curve at the top and another forming an apron at the bottom. In the stepped profile the courses are laid horizontally and with the same thickness of bed from bottom to top. This thickness of bed never exceeds two feet and is more commonly nearer fifteen inches. Even in the dams with straight profile the face stones are generally laid with horizontal joints, the required bevel being given to the face, in the curved profiles the face masonry is generally laid normally to the curve."

LABUAN COAL MINES

After a great many years of misfortune, set-backs through tapping feeders of water in the mines, owing to insufficient pumping power, labor difficulties, breakdowns of machinery etc., etc., it is extremely gratifying to observe that the praiseworthy patience of the shareholders of the Coal Company has, at last, every indication of reaping its merited reward. An extensive electrical plant has been installed and about two or three months ago the Blue Funnel steamer Ching Wo brought to Labuan some 300 tons of mining machinery. Since the beginning of the present year progress has been steady and satisfactory and, although the new machinery has not yet all been laid down, the output has been gradually increasing until it is now found necessary to export coal for sale on other markets.

The first shipment of 1,750 tons was made to Hongkong per the ss. "Fiume;" loading was accomplished in three and a half days. This is not, of course, rapid work but, nevertheless, good for a commencement and no doubt better despatch will be given later on.

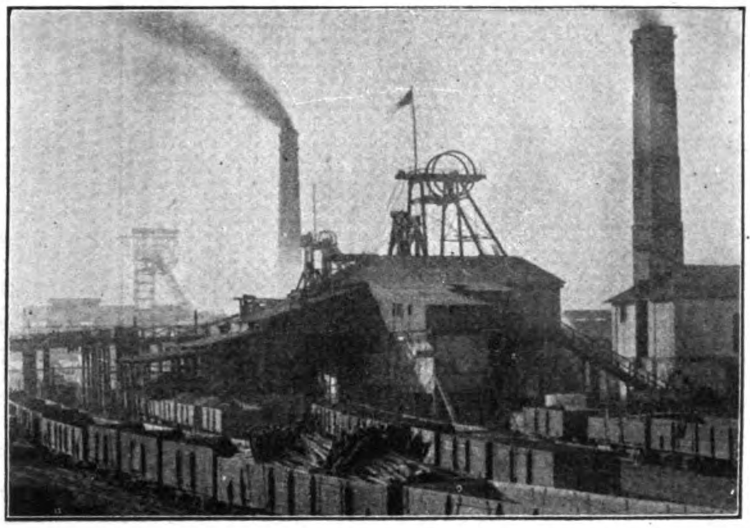
No fear of failure is entertained on the score of quality provided the coal is given a fair chance. Labuan coal may be favorably compared with the best Japanese and the engineers of the local Norddeutscher Lloyd steamers, who have used it for many years, speak very highly of it and like it more and more as time goes on. Another indication of the good quality may be inferred from the fact that many Ocean steamers have made several additional calls at Labuan for bunkers after first coming for a trial. It has, further, been ascertained that one large London shipping firm have entered into a contract to take several thousand tons during the current year and this alone has some significance. The Coal Company undertake to supply steamers calling at Labuan for bunkers at very reasonable prices, there is also a regular supply of good potable water, and fresh provisions are obtainable at all times of the year. It seems perfectly safe to predict a prosperous future for the newly acquired Dependency of the Straits Settlements.—*Free Press.*

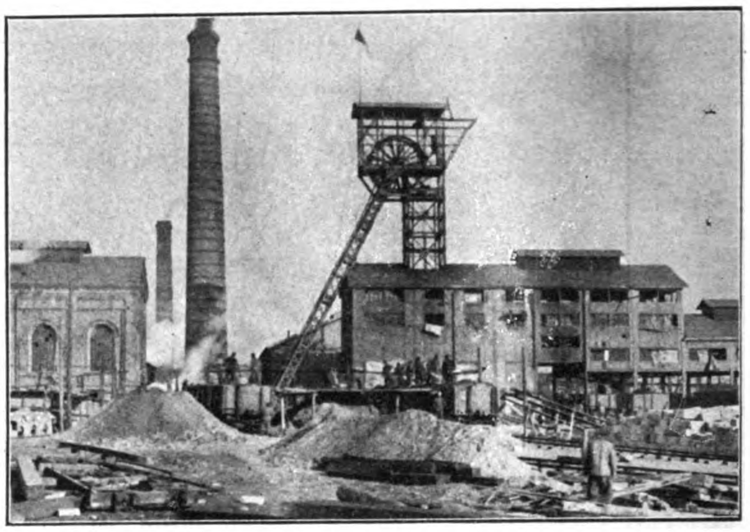


PLAN OF IRRIGATION SYSTEM OF THE IMUS ESTATE, CAVITE, AFFECTING AN AREA OF 23,000 ACRES

ELECTRIC INSTALLATION IN THE TONGSHAN MINES

The new electrical plant installed by the Chinese Engineering and Mining Co. in its Tongshan mines was formally opened last month in the presence of a large number of guests of the company. The new plant is one of the most complete and modern in the far east and the management is better equipped than ever to operate its growing business





VIEWS OF THE TONGSHAN COAL MINES OWNED AND OPERATED BY THE CHINESE ENGINEERING AND MINING CO. (LTD.)

The installation includes boilers and their accessories, steam alternators, motor and steam exciters, transformers, switchboard, a 50-ton crane, all the necessary steam piping, a cooling tower, arc and incandescent lamps for surface lighting, underground pumps with their accessories, all contracted for and erected by the Allgemeine Co. and Siemens Schuckert Works, both of Berlin.

The boiler house is 190 ft. long and 71 ft. wide and contains 12 Cornwall Galloway type boilers by The Grandes Chaudronneries de l'Escaut. The boilers are 8 ft. in diameter and 36 ft. long and have a capacity of 3700 to 4400 lbs. of dry steam per hour at a pressure of 140 lbs. Each boiler has its superheater with surface of 430 sq. ft. and an injector with a capacity of 880 gallons per hour. Two Becker feed pumps of 4400 gallons per hour are placed at the north end of the building. Two Green's economizers with electrically driven scraper gear, are placed near the chimney, each economizer being able to heat the necessary feed water for running one set with accessories under full load to a temperature of 80° C.

The power station measures 125.51 ft. There are three Vanden Kerchove S. S. W. type steam alternators having a capacity of 1300 K.V.A. three-phase at 2,200 volts, 107 rev., and 25 cycles per set. Each set has its own jet type condenser and air pumps, but can run exhaustion to air with reduced load. Three Victor generator sets and one steam exciter set are provided for excitation and lighting purposes. The A. E. G. Allen steam exciter set has a capacity of 40 B.H.P. while the A. E. G. type motor generators have a capacity of 85 K.W. each, at 220 volts and 745 revs.

Two 20 K.V.A oil cooled transformers are provided for reducing the tension from 2,200 to 220 volts for the economizer motors, etc.

The switchboard is well worth inspection; its special feature is the manner in which the high and low tension current is separated.

The 32 panels are arranged in two levels; the top half being served from a platform, a special panel is provided for synchronising.

A 30 ton "Titan" travelling crane runs the whole length of the Power Station.

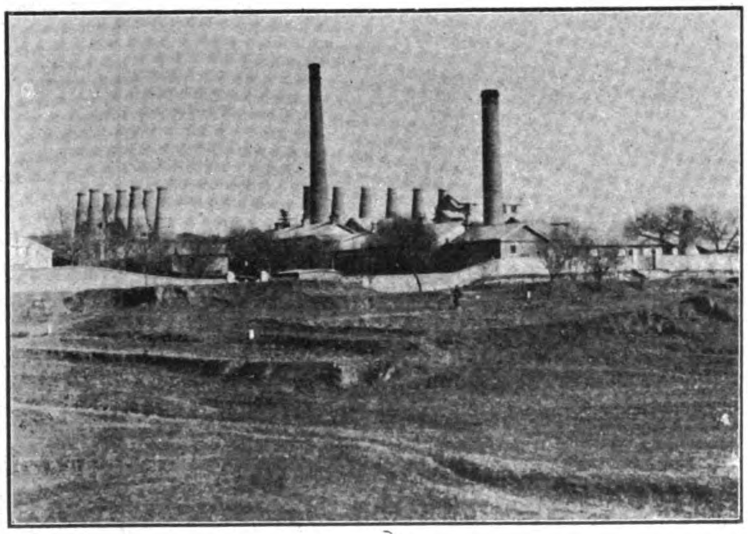
The live steam, exhaust and water-pipings are supplied by Messrs. Brener; a special feature is the flange arrangement.

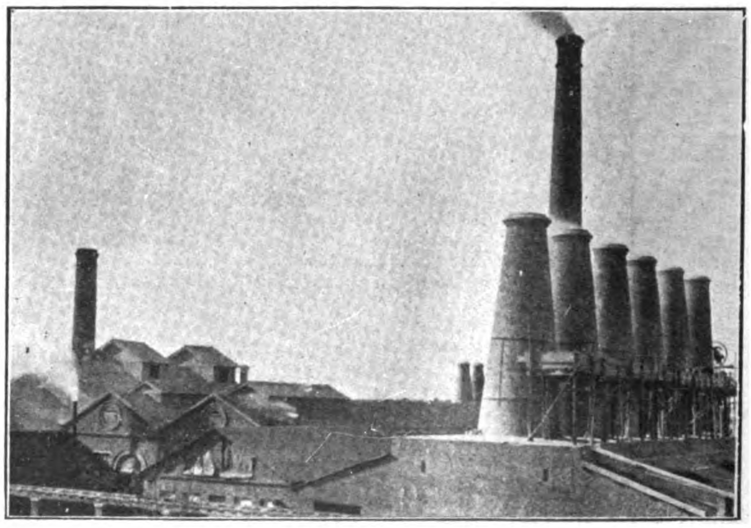
At the South end of the Power House is the "Black" cooling tower for condensing water, complete, with its electrically driven centrifugal pump for 330,000 gallons per hour.

The surface of the mine is lit by 48 arcs of 800 and 1,400 cp. and 300 glow lamps of 16 cp, and 220 volts, the necessary power being got from the motor generators.

Underground there are 5 motor driven Sulzer type centrifugal pumps having an individual capacity of 1,200 gallons per minute against a head of 700 feet. The direct coupled A.E.G. type of motor is capable of giving 470 H. P. at 2,000 volts and 1485 revolutions a minute. Three pumps are placed in the fourth level at a depth of 670 feet and two in the sixth level at 1,000 feet. There is a spare pump in each level. Each pump chamber is provided with its own switchboard, lighting and starting transformers, etc.

The pumps in the sixth level deliver water to the fourth level, and those in the fourth level





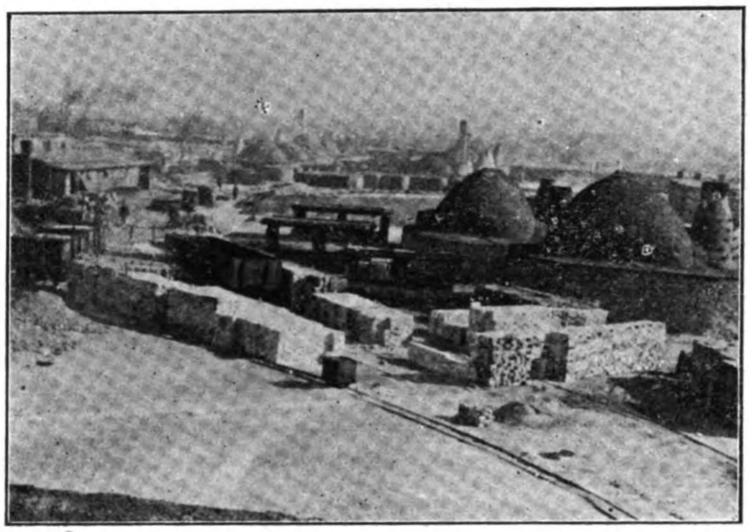
VIEWS OF THE TONGSHAN CEMENT WORKS ALSO OWNED BY THE CHINESE ENGINEERING AND MINING CO. (LTD.)

deliver up to the surface. An extra electric cable and a reserve water exhaust pipe are also provided. Besides the equipment referred to sundry additional motors for fans, the operation of the sawmill, brickyard, workshops, North west shaft, etc., will shortly be installed.

It has also been announced that the Linsi colliery will also be equipped with a similar installation including nine boilers and two generating sets.

BANGKOK SHIPPING

The shipping cleared inwards and outwards at the port of Bangkok last year, increased in accordance with the increase in the volume of trade. Some 793 steamers of a tonnage of 731,988 were cleared inwards, as compared with 739 steamersof 670,109 tons in 1905, and 722 steamers of 649,420 tons in 1904. Roughly it may be said that the increase is divided between the German and the Norwegian flags. The number of German steamers has grown from 348 in 1904 to 361 in 1905 and 379 in 1906. Similarly Norwegian steamers, cleared inwards, numbered 114 in 1904, 165 in 1905, and 206 in 1906. On the other hand the number of steamers under the British flag has fallen from 137 in 1904 to 103 in 1905, and 98 in 1906. The German flag covered over 55 per cent of the imports, practically 60 per cent of the tonnage and $47\frac{1}{2}$ per cent of the number of steamers last year. To the Norwegian flag has to be attributed close on 26 per cent of the number of steamers, over 21 per cent of the tonnage, and practically 29 per cent of the imports. The British vessels numbered over 12 per cent of the total, accounted for 15 per cent of the tonnage and carried $9\frac{1}{2}$ per cent of the imports. Of the exports 57 per cent was carried in German, 26 per cent in Norwegian, and over $12\frac{1}{2}$ per cent in British bottoms. The rest of the shipping is a small matter even in the aggregate. There was a falling off in the number of sailing ships last year, only eleven visiting the port, but there was an enormous increase in the number of junks, 340 arriving as compared with 59 in 1905 and 58 in 1904.—*Bangkok Times.*



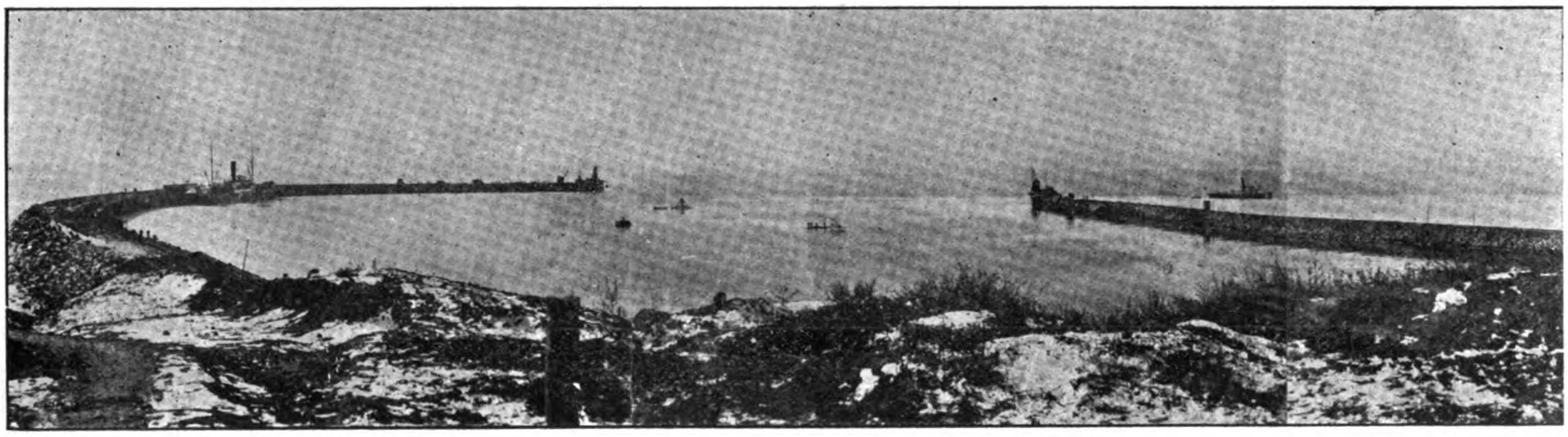
FIRE BRICK FACTORY AT TONGSHAN

COKE MANUFACTURING PLANT OWNED BY THE C. E. AND M. CO. (LTD.)

BAMBOO SAP

In replying to a California inquiry as to the use of the sap of the bamboo in India, Consul-General William H. Michael, of Calcutta, supplies the following information:

"The sap of the female bamboo is used for medicinal purposes in India, and it may be had in the Indian bazars of Calcutta at from 41 cents to $1.35 per pound, the latter being the specially white and calcined tabashir. "Tabasheer," or "banslochan," is sold in all Indian bazars, as it has been known from the earliest times as a medicinal agent, its use as such having, it is supposed, originated among the aboriginal tribes. It is also known in Borneo, and was an article of commerce with early Arab traders of the East. Its properties are said to be strengthening, tonic, and cooling. A great deal has been written about tabasheer or tabashir in Hindu medical works which have been reviewed by modern writers. It has been analyzed and has been shown to consist almost entirely of silica, with traces of lime and potash. With our present knowledge of medicine, such an article is not calculated to be very efficacious, but from its remarkable occurrence in the hollows of bamboos the eastern mind has long associated it with miraculous powers.



PORT OF CHINGWANGTAO, THE PROPERTY OF THE CHINESE ENGINEERING AND MINING CO.

NEW JAVA COMPANY

The Simo Rubber Co. is the latest new venture, and is a scheme to acquire and develop land in Java. The persons furthering the promotion are: Messrs. T. C. Owen, J. L. Bent, and W. G. Tarbet (late Editor of the *India Rubber Journal*), and the Agents will be Messrs. Rowe White and Co. The gentlemen just named will probably be the first Directors of the Company, the capital of which is suggested to be £35,000 in £1 shares. 5,000 of these will be reserved subject to call at par, and 4,000 will be allotted along with £18,000 in cash as payment to the vendors of the estate. One noticeable feature in company development in Java appears to be from the advance statement of this flotation that land is let out in that country in return for labor, and on the estates under consideration there are 6,070 people, out of which 260 per day require to give their services free in return for use of the land.—*Ceylon Observer.*

TRADE OPPORTUNITIES

Sugar-mill Machinery.—Consul Arnold, of Tamsui, Formosa, sends particulars of the new sugar-crushing enterprises on that island, with a list of the new and old companies. Some of the newly organized concerns intend sending their representatives abroad to purchase machinery and equipments. Further information may be obtained from the bureau of manufactures. American business men should bear in mind, adds Mr. Arnold, that there are other materials besides machinery to be purchased by these companies, such as corrugated iron for roofing and building purposes, tools and implements for machine shops, and everything which accompanies such plants, which will be operated by steam power. The production of sugar in Formosa in 1906 amounted to 178,500,000 pounds, an increase of 50 per cent over 1905, and the production is steadily increasing.

THE SANTA MESA ROPE WORKS

The Santa Mesa Rope Works, situated on the banks of the Pasig river, are among the most important establishments in the Philippines. They are owned and operated by Emil H. Johnson and John T. Pickett, two enterprising American businessmen, and at the present time over 70,000 pounds of the finest rope manufactured anywhere in the world represents the monthly product. Messrs. H. R Cooper & Co., 3 Callejon de San Gabriel, Manila, are the sole agents for the works.

This factory was established by an English firm over fifty years ago, and notwithstanding the fact that its site was the objective of the insurgents and Santamesa the battlefield, the works were never completely destroyed although the doors still show the marks of rifle butts and bayonets where they were forced by either insurgent or Spanish soldiers in the conflicts that raged in that vicinity.

Until recently the works were known as "Cordelería de Valenzuela," the title remaining until taken over by the American proprietors. The plant seems to have been kept continually in operation except when the buildings were needed for headquarters for the Spanish soldiers. It changed ownership several times during its early history, and on one occasion it was partly destroyed by fire when it was owned by Messrs. Tuason and Legarda. In 1895 it was rebuilt by Señor Sanchez Valenzuela and under his management the factory turned out more product than in its previous history. Not only was the output large but the product was graded and recognized as the best not only in the Orient but in the world. Señor Valenzuela won many medals at exhibitions held in Europe over the leading rope manufacturers.

This man under whose management the factory prospered and was recognized as the leading rope manufacturing plant in the world met a tragic death during the outbreak of 1896. The factory was raided and looted by Spanish soldiers, and Señor Sanchez, who was living in a house, met his death from Spanish bullets either by accident or design. The business was, however, continued under the direction of Honorio and Juan Valenzuela, the unfortunate man's sons until 1902 when Honorio died leaving Juan in control. In 1905 the entire plant was destroyed by a terrible typhoon which swept the islands and all the buildings were left a mass of twisted ruins.

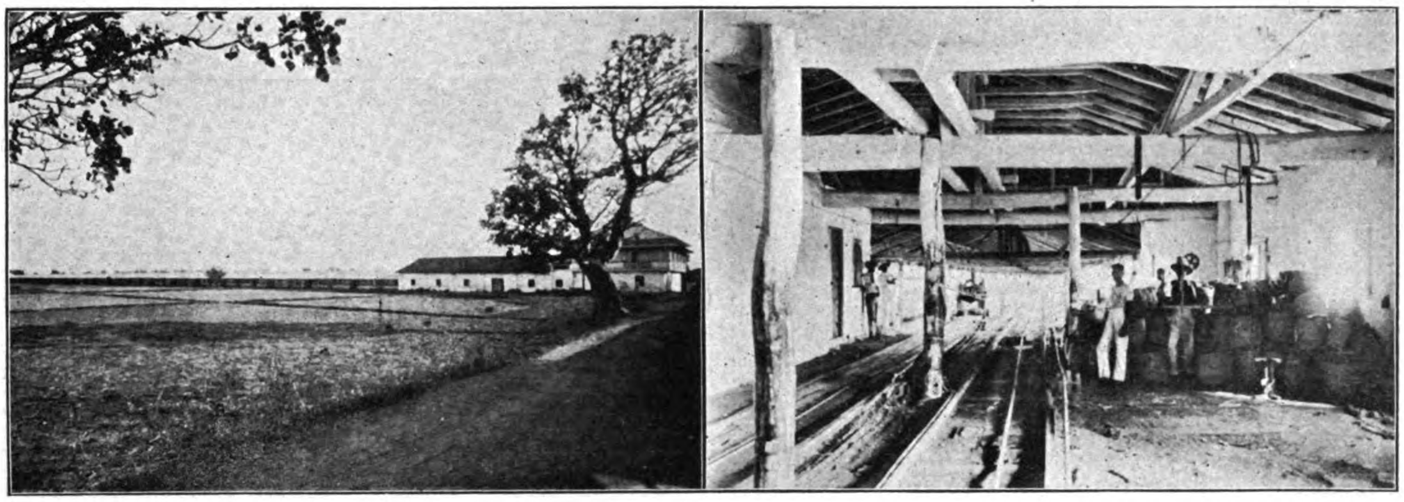
In 1906 the present proprietors purchased what was left of the once prosperous works and after extensive outlay they were once more in operation. The new management installed a motor and the factory has since been operated by electric power.

Mr. Johnson is in direct charge of the factory. He is an expert ropemaker and fiber expert. Under his management the factory has sustained its reputation for turning out an unequalled product. So encouraged are the present proprietors that they are considering extensive additions to the already modern plant for the purpose of doubling the present output.

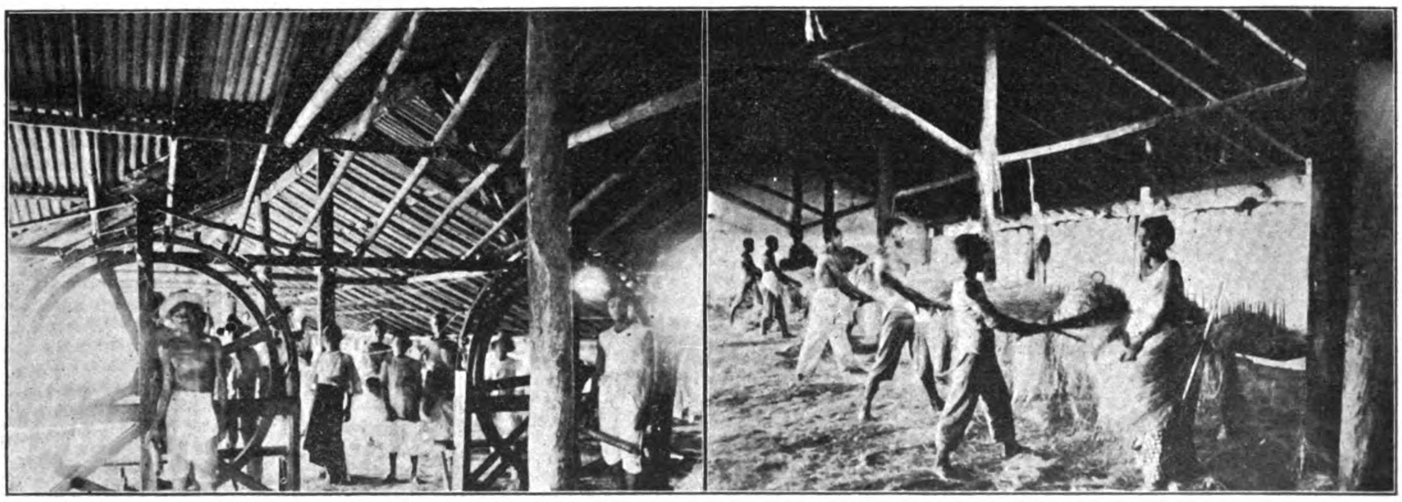
In connection with the works there are approximately 120 persons employed all of whom are trained workmen. The advantage of being in the market at all times for the best quality of Manila hemp where it is cultivated has had much to do with the excellent quality of rope turned out. Only the choicest of hemp fiber grown in the islands is used so that it is practically impossible for any European or American manufacturers to compete either in price or quality of the rope put on the market.

As heretofore stated in this article the site of this factory is one of the most historical places in or about Manila. No history of the insurrections against the Spaniards or the Americans would be complete without reference to the important strategic position of the plant on the bank of the Pasig River as Santa Mesa heights slope down to the river. In his book "The Katipunan," Millar, the author, devotes some space to the part the old rope factory played in the struggles between the insurgents and the sovereign nations for the mastery of Manila. The author of "Manila Romans" also refers to the refuge of the hunted and the rendezvous of the strong.

A comparison of the tests made of the product of the Santa Mesa Rope Works with tests made of the product of similar factories in the United States and Europe favors the product of the Santa Mesa plant. Major Ahern, director of the bureau of Forestry, makes the following statement relative to tests made which de-



VIEWS OF THE SANTA MESA ROPE WORKS



INTERIOR VIEWS OF THE PLANT OF THE SANTA MESA ROPE WORKS

monstrates the superiority of the Santa Mesa product:

DEPARTMENT OF THE INTERIOR.

BUREAU OF FORESTRY, *Feb.* 7, 1907.

SIR:—

I have the honor to submit the following statement of results of tests on two sizes of ropes tested at the Timber Testing Laboratory for the Santa Mesa Rope Works, Manila, P. I.

Rope, 2″ circumference.

Specimen No.	Breaking load. Pounds.
1	1948
2	2267
3	1929
Average	2048

Rope, 1″ circumference.

Specimen No.	Breaking load. Pounds.
1	730
2	876
3	671
Average	759

Respectfully,

(Sigd.) ROLLAND GARDNER,
Mgr. Timber Testing Laboratory.

The above results compare favorably with a summary of results of rope tests made by this Bureau, as published in the last annual report. An extract from the annual report is as follows:

Rope made at	*1 in. circum. Strength Lbs.*	*2 in. circum Strength Lbs.*
Bilibid	709	——
do	431	——
United States	676	3268
Tubbs Cordage Co.	703	——
Plymouth Cordage Co.	907	——
Ynchausti & Co.	——	2058
do	——	1514

GEORGE P. AHERN,
Director of Forestry.

PHILIPPINE HARDWOOD USED IN SUBURBAN CAR CONSTRUCTION

That Philippine products will eventually be largely used in the trades in this country is the firm belief of C. A. Ricks, secretary-treasurer of the Kuhlman Car Company of Collinwood, O. Mr. Ricks believes the Philippines have a great future and is inclined to question the intimation that the United States has a "white elephant" on its hands.

"At the present time several Cleveland firms are directly interested in the islands," said Mr. Ricks. "The Nicola-Stone & Meyers Company, a large lumber house of Cleveland, operates a 60,000 acre tract of timber land in the Philippines and is selling Philippine woods here in Cleveland.

"The Kuhlman Car Company is using Philippine wood called 'lauan' in the interior finish of two big handsome suburban cars now building for the Rochester-Syracuse and Eastern Railway. These will be the first electric cars in the United States finished in Philippine woods, and there is no question at all in a very few months 'lauan' will replace Mexican mahogany in the interior finish of suburban cars.

"I believe that more money will be taken out of the Philippine Islands in lumber alone in the next ten to fifteen years, than was taken out of Alaska in gold in the first ten to fifteen years after the United States purchased Alaska.

"The future wealth of the Philippines will lie mainly in the vast forests of valuable timber which they contain. This view is entertained by the administration, and the most farseeing measures have been adopted to conserve the extensive areas of public woodland.

"The archipelago has never been completely surveyed, but the official estimates, from which the following figures are deduced, probably approximate to exactness. The total land area of the islands is upward of 73,000,000 acres. Of this more than 66,000,000 are the property of the state and about 45,000,000 acres of this public domain are wooded, leaving 21,000,000 acres of land mostly capable of cultivation.

"But the prince of cabinet woods is narra, the mahogany of the Philippines. The tree grows to a great height—120 feet and over—and yields logs by the present process sixty feet in length and seven or more in diameter. The trunk at the roots will sometimes furnish a table top ten to twelve feet across. When cut the heart of the tree bleeds a bright red. The wood is deep red—there is a less prized white variety—and polishes to a brilliant vermillion color."

INDUSTRIAL PROMOTION, JAPAN

Vice-Concul-General E. G. Babbitt, of Yokohama, reports to Washington concerning Japan's industrial investments since the war with Russia and other movements in that direction. He calls attention to the fact that it is reported that only a fourth of the sums subscribed to establish new companies is ever paid in. He writes:—

The amount of capital subscribed for new companies during one month of 1906, was about $18,764,900; to enlarge companies already existing, $6,682,500. This, with the amounts previously subscribed, made the aggregate, since the conclusion of the Japanese-Russian war, about $416,502,040. It is the prevailing custom among Japanese companies to start business with only one-quarter of the shares paid up, and this, the *Japan Herald* says, is held responsible for the alleged insecurity of business interests and for inviting speculative investments. As things are now these quarter shares change hands so rapidly that it is often a difficult matter, at the first general meetings of shareholders, to identify the real holders. Such an arrangement is a check to the real growth of undertakings, and Japanese business enterprises will not attain the solidity of foreign corporations until, like them, the whole or at least three-quarters of the shares are required to be paid up.

There seems to be some reason for apprehending that the business of company promoting in Japan is assuming serious dimensions. According to investigations conducted by the Nippon Ginko (Bank of Japan) capitalization of new enterprises started from July, 1905, to November 30, 1906, including increase of capital, involves 988,729,080 yen (yen=49 cents). The following statistics indicated the nature of such enterprises:—

	New enterprises.	Increase of capital.
	Yen.	*Yen.*
Banks	31,970,000	30,747,250
Spinning factories	20,353,000	28,469,080
Electric business	93,310,000	17,080,000
Mining business	44,270,000	3,550,000
Marine products	16,725,000	1,000,000
Railways	294,330,000	72,519,000
Manufacturing industries	149,544,800	64,167,000
Shipping business	5,000,000	8,400,000
Insurance business	30,700,000	13,600,000
Commerce, etc.	44,480,000	18,513,150
Total	730,682,800	258,045,480

Another feature in the development of such enterprises in this country is the growth of the marine-product business. The fishery companies incorporated during the eleven months ending November 30, numbered 17, involving a capital of 14,975,000 yen, of which only 1,825,000 yen has actually been paid up.

CHINESE RAILWAY SCHEMES

With the single exception of education, says the *North-China Daily News*, represented by the feverish establishment of schools here, there and everywhere without regard to the requirements of the districts or to the possibilities of securing the requisite teaching staff, there is nothing into which the Chinese are throwing themselves with such enthusiasm at the present juncture as into the construction of railways. From all sides come reports of lines being advocated, planned and in some cases begun. In distant Yunnan it is proposed to build the Têngyueh railway; in Manchuria there is said to be another scheme on foot to build a line from Hailungcheng to Kaiyuan, which if ever constructed would be a rival to the Mukden-Harbin Railway and to further railway enterprise on the part of the Japanese in that country. From Chaochou to Swatow a railway has recently been completed, which was built entirely with Chinese capital. The construction of this line, 30 miles in length, was placed in the hands of Japanese contractors; it has cost upwards of $3,000,000 and has taken 2½ years to build. The Peking-Kalgan railway line is also in Chinese hands and is proceeding at a proportionate rate. A statement appeared in a contemporary a few days ago to the effect that Russia was dissatisfied with the progress of this line and was endeavoring to hasten its construction. In numerous other districts railway work of a kind is being carried on, while ten days ago the ceremony of turning the first sod of the railway from Shanghai to Kasking was performed outside the South Gate of the native city. This line is said to be in the hands of the Kiangsu and Checkiang Railway Companies, the shareholders of which comprise of gentry and merchants of these two provinces. The scheme is for the Kiangsu Province Railway Company to build the line from Shanghai to Fêngchingchên on the border, while the Chekiang Province Railway Company will carry on the construction from that point to Mashing and thence, it is stated, to Hangchow. This formation of provincial railway companies meets with the support of the Peking authorities, and according to a telegram which we publish to-day the Waiwupu is asking the Governments of the provinces concerned to undertake the construction of a railway from Tientsin to Chinkiang.

It would be well if all these symptoms of railway fever could be taken seriously and were likely to lead to definite results. As things are, however, China does not appear to be going to profit by more than one out of every ten or twenty schemes planned and, perhaps, begun. Officials are availing themselves of the spirit of the times to appeal to their patriotic countrymen to subscribe funds, in order to keep out foreign capital. In the case of the Tientsin-Chinkiang line, indeed, the Waiwupu's request is said to be promoted solely by the desire to thwart foreign claims on this proposed railway. Agents are even being sent to Chinese abroad, notably at Singapore, to collect funds for railway enterprise, and there is no doubt that success is attending the efforts to raise Chinese capital for railway construction.

NEW PUBLICATIONS

South America is the name of a new illustrated monthly, printed in Spanish and English and devoted to matters appertaining to South and Central America, Mexico and the West Indies, covering commerce, industries, mining, agriculture, finances, science, exploration, travel, fiction, art, literature, music, drama and society. It is published by the Latin-American Company, Metropolitan Building, New York City. Mr. J. W. Davis is editor-in-chief, and Mr. Walter J. Ballard is named on the title page as associate editor. A special article entitled "Our Latin-American Trade," written by Mr. Ballard, appears in the preliminary issue.

Crucibles, Their Care and Use, by John A. Walker, is a valuable volume issued by the John Dixon Crucible Co., Jersey city, N.J., U. S. A. The purpose of the book is to instruct users of crucibles in their proper use and to instruct against the dangers of ignorance as to their operation.

The Filipino Teacher's Manual, by H. C. Theobald, A.B., principal of the provincial high school of Batangas, P. I., and issued from the presses of the World Book Co., of New York and Manila, has reached our deck. The volume is intended to assist the native teachers in the Philippines and to encourage them in their work. The author who is familiar with conditions in the Philippines gives the native teachers the benefit of his experiences as a teacher, and from a cursory review the volume appears to have unusual merit and we believe will be appreciated

TRADE OF KWANTUNG PENINSULA

In reviewing the trade situation and outlook for Dalny and surrounding country, Vice-Consul P. S. Heintzleman says it is necessary to bear in mind that the region, viewed in the light of foreign commercial interests, is practically new. He writes:

Indications are that Dalny will develop into a prosperous commercial city. With its commodious harbor, superb shipping facilities, and railway extending through the heart of Manchuria into its northern districts, it apparently possesses all or nearly all of the most essential requisites for becoming a commercial center of no mean importance. This is one of the finest deep-water harbors of the Pacific, as it is free from ice during all seasons of the year, and ships drawing 30 feet can enter at low tide without any difficulty, and, even without the aid of a pilot, steam alongside the piers and docks, well protected by a breakwater, where their cargoes can be loaded directly into cars that run into all the large trading centers of Manchuria. The surface of the bay comprises many square miles, and the deep-water area is sufficient to handle the shipping of all North China. The rise and fall of tide does not exceed 11 feet. The harbor possesses 5 large piers, varying in width from 60 feet to several hundred feet, and in length from a quarter of a mile to half a mile, two of them being supplied with lines of railway tracks, numerous warehouses and storage sheds, and electric lights. There is abundance of room in the harbor and sufficient depth of water to provide for any number of piers desired. A large breakwater is constructed across the front of the piers, so that ships can lie at the piers and load and unload regardless of the weather. Docks for foreign vessels, steam and sail, extend between these piers and along the shore for 2 miles. There are two-first class dry docks; one is intended for ordinary ocean steamers, and the other can accommodate the largest vessels of commerce or war.

AN ECONOMICAL SHIPPING PORT.

The ease of entrance into the harbor at all seasons of the year, the small amount of labor required to transfer goods from the ocean vessels to the cars, the low-priced cooly service, and the policy of low freight charges already adopted by the new South Manchurian Railway Company, combine to make this one of the most economical shipping ports of the Orient, and a wise policy of railway administration should develop a trade of such large proportions as would create here one of the greatest commercial points on the Pacific. The accomplishment of these results will take considerable time, though not necessarily involving a large outlay of money on the part of the Japanese Government. Radical changes, incurring great expense, will have to be effected on the South Manchuria Railway, which is really the key to the success of this port. The railway after being conveniently connected with the Russian portion of the line in north Manchuria, thereby opening a through traffic, will have a most powerful bearing upon the commercial development of Dalny and, indeed, upon the successful exploitation of Japan's commercial enterprises throughout all Manchuria.

DALNY'S POPULATION.

The population of Dalny, according to a police census taken in December, 1906, is given as 22,483. The police returns for Dalny show that there are 1,762 Japanese shops, stores, and firms located here, of which about 200 may be classed as firms, and of these probably 50 are large, reliable, and of some prominence. The Chinese shops, stores, and firms are placed at 908, though the influential Chinese firms do not exceed one dozen.

Dalny contains a large area of well-constructed streets and many modern buildings, substantially built of brick. The town is well supplied with parks and possesses numerous hotels and several schools, churches, and hospitals; there is also a daily newspaper in the Japanese language. Dalny has an electric-light plant, and all the public buildings and many private residences and places of business are electrically lighted. The service is good and the charges moderate. The same may be said of the water system. The telegraph and mail facilities are excellent, and the list of subscribers to the telephone has doubled during the past year. The fire department is well organized and equipped. In a large commodious building, conveniently located in the center of the commercial section, is the market, where vegetables, fruits, fresh fish, and meats are on sale daily. The building is kept in excellent sanitary condition. The town is properly policed, while the body of gendarmes located here permanently render effective service. Besides the police court there is the Dalny district court, holding its sessions at regularly stated intervals.

BANKS AND FOREIGN INVESTMENTS.

A branch office of the Yokohama Specie Bank is established here and the Hongkong and Shanghai Bank has an agency. The former is doing a flourishing business. The total amount of drafts and bills of exchange drawn on Japan and deposited with the bank for the year 1906 aggregated almost $3,500,000, and those on China for the same period totaled $1,750,000; while the drafs locally granted and bills of exchange negotiated with Japan amounted to $1,100,000, and with China $1,500,000 for the year.

Foreign merchants are proceeding cautiously in the way of opening branches here. There are three foreign firms, all of them branches of British concerns in Japan and China, domiciled in Dalny, and representatives of other large foreign commercial houses in the East come here, from time to time, to view the situation and study the conditions. It is my belief another six months will see other reputable and long-established foreign firms of the Orient with branch offices in this city.

The apparent willingness on the part of large foreign firms to invest capital in Dalny by renting, leasing, or purchasing property for the establishment of branch houses, and especially on the part of Chinese merchants, who are noted for the readiness with which they see and grasp a business opportunity, may be considered the best indication of the future success of Dalny, as a commercial center. The belief that foreigners will receive equal rights with the Japanese is becoming more general, as also the belief that Japanese methods will finally be so modified as to encourage and develop outside trade.

At present nearly all the merchandise imported into this city comes direct from Japan; Chefoo and Antung, alone of the near-by cities, being credited with a small share of the trade. Almost all the goods thus far imported were carried in Japanese bottoms; in fact, during the four months ending December 31, 1906, in which the port has been open to foreign trade, only six steamers bearing flags other than Japanese have entered Dalny, and these were for the most part from Chefoo. Since the northern port of Newchwang has been inaccessible for steamers owing to the frozen waterway, a small British steamer, the Newchwang, of 895 gross tons, has been placed on the Chefoo-Dalny, line, and has been plying regularly between these towns. The passengers are Chinese, and the cargo carried is of such a limited quantity that the run scarcely pays the operating expenses.

One of the Boston Towboat Company's steamers, the Hyades, of 3,753 gross tons, called here in January laden with 125,000 bags of American flour, consigned to Chinese merchants. This is the first merchant steamer flying the American flag to call at this port since its occupation by the Japanese.

REVENUES OF THE PORT—SPECIAL RAILWAY RATES.

Since the opening of Dalny to international trade on September 1, 1906, it is a free port, and all merchandise of whatever origin or description is now entered without payment of duty. There is a wharfage fee for all steamers lying alongside the piers of 2½ cents per gross ton, a passage duty of 5 cents a ton on all cargo discharged or to be loaded at the piers, a ground rent of one-half cent per 36 square feet for every 24 hours the merchandise discharged or to be loaded lies on any of the wharves, as well as an additional shed-rent charge of 1 cent per 36 square feet for every day any of the government sheds are used for storage purposes. A steamer, however, may anchor out in the harbor, away from the piers, and pay no government charges whatever. In this case only may Dalny be called a free port in the true sense of the word.

The Osaka Shosen Kaisha maintains an excellent steamship service between Osaka and Dalny, touching at the intermediate points of Kobé and Moji. This company receives a liberal subsidy from the Japanese Government. The Nippon Yusen Kaisha also has three steamers on the run to Dalny.

That special freight rates over the Tashichiao-Dalny section of the railway are being granted all merchants of whatever nationality on all merchandise entering or leaving Manchuria via Dalny there can not be the least doubt. Tashichiao is the point at which the line from the north divides, one branch running thence to Newchwang, a distance of 13 miles, while the other extends to Dalny, a distance of 150 miles. The military authorities in charge of the railway decided to make the transport rate uniform for both distances so that goods coming south can reach Dalny as cheaply as at Newchwang. In support of their action the railway authorities claim that unless some special device be resorted to, the Tashichiao-Dalny section of the road will not pay. There is no discrimination in this, to the best of my knowledge and belief, since goods of all nationalities enjoy the same privilege over the Liaotung section of the line.

I was recently handed an official statement by the civil administrator here purpoting to be a declaration by the Tokyo government and couched in the following language:

> The question of the adjustment of railway fares to Talren (Dalny) and to Newchwang will be for the consideration of the South Manchuria Railway Company; but as it is intended to make Talren the central point for distributing and receiving merchandise to or from Manchuria, railway rates must be adapted to that programme, and the condition of Newchwang will probably be left to the laws of natural development.

On the other hand, searching investigations conducted by this office, in response to numerous complaints made by foreign merchants that Japanese traders are enjoying special treatment in the matter of freights on the South Manchuria Railway, reveal that these allegations are not founded on fact. All goods without distinction of their source are allowed to enter duty-free at Dalny, but there can be no question that under existing circumstances Japanese goods constitute the great bulk of the arrivals, and there are good reasons for believing that they will constantly assume large proportions.

DALNY FAVORED BY ICE AT NEWCHWANG.

The statistics in detail of foreign trade for December have not yet been compiled, but it is officially stated that there is recorded by far the largest monthly increase in the volume of trade in the history of the port. This is explained for the most part by the fact that the closing of Newchwang by ice has diverted to Dalny a number of ships which would otherwise have discharged their cargoes at Newchwang.

The chief articles of export are beans, bean cake, barley, millet, salt, furs, mules, fruits, vegetables, wild raw silk, and wild cocoons; while the leading articles of import are cotton yarn, cotton goods, shirtings, flour, kerosene oil, tobacco, lumber, rice, sugar, paper, cement, fowls, and eggs.

A careful analysis of an official statement of statistics, describing in detail Manchuria's trade with Japan during 1906, reveals the indisputable fact that, of a total import trade of $10,368,988, Dalny is credited with having received merchandise valued at $8,883,635; or in other words, 85 per cent of Japan's import into Manchuria during 1906, and the particularly noteworthy feature of this trade is that it was entered duty free. The total value of Japanese goods imported into Newchwang

in 1906 is given at the surprisingly low figure of $1,352,813, or about one-seventh of the amount accredited to this port. Japanese goods entering Manchuria through Antung last year are valued at $736,046, or about 8 per cent of the amount passing through Dalny. The total value of Manchuria's exports to Japan for 1906 is placed at $3,985,340. This amount is divided among the three ports of shipment as follows: Newchwang, $3,097,720; Dalny, $473,734; and Antung, $413,886.

AMERICAN FLOUR IN MANCHURIA.

The United States is supplying practically all the flour used in Manchuria. Large cargoes are discharged daily by the fifteen or more steamers plying regularly between Japanese ports and Dalny, and loaded at once into freight cars to be transported into the interior. Whole trains, consisting of dozens of freight cars, laden only with flour from the Pacific slope of the United States can be observed here at any time. Recently in one day 133,000 bags of flour, destined to Yingkow, were landed in Dalny, as the waterway at the former port was frozen over. During the first ten days in December last 496,640 bags of flour were transported into northern Manchuria by train, nearly 1,500 cars being used for this purpose. Thus, when Newchwang is closed by ice, a greatly increased amount of flour is imported into Dalny, to be transshipped into the interior. In my opinion no fear need be entertained at present by the American flour interests that their hold on this market is being threatened by Japanese or Russian competition.

COTTON GOODS, OIL, TOBACCO, AND BEANS.

Japan is apparently making efforts to capture the cotton-goods trade. The Government is lending financial assistance to the development of this industry. The principal consumer of Japanese cottons is China; and Manchuria, which is now being so extensively exploited by Japan, will become its great cotton-trade center in China in the near future. There is but one firm in Dalny importing cottons, the Mitsui Bussan Kaisha, the largest, richest, and most influential commercial concern of Japan. This company is putting forth strenuous efforts to control the cotton-goods trade of Manchuria, and is importing large quantities from Bombay, via Moji, and from Japan direct. Its large importations into Dalny during 1906 are shown by the following figures: Cotton goods, 22,642 bales, valued at $1,252,279; cotton yarn, 26,079 bales, valued at $1,458,332; total, $2,710,611. It may be that in a short time the Chinese will undertake the control of this business.

Nearly all the oil imported now is American, a small shipment of the Sumatra product having made its first appearance in October, some of which is still lying in a godown here, there being no market for it in this region. The demand for the American illuminant in Manchuria is on a steady increase, as may be noted in the values of the monthly importations, from $8,000 in September to $28,340 in November, 1906.

Japan is encountering some difficulty in selling her cigarettes here; the British-American Tobacco Company, actively competing, has succeeded in three months in forcing down the price, and advertising extensively throughout all Manchuria by means of large, attractive posters. Their cigarettes, for which there is quite a demand, can be purchased in any of the stores and bazaars here. The local tobacco monopoly office has informed me that the value of its importations for the months of September, October, and November, 1906, was $68,373.

The major portion of the bean export business of Manchuria is at present conducted through Newchwang, but with the advent of the South Manchuria Railway Dalny is bidding to become the great bean market of the East. In order to divert this trade from Newchwang it will be necessary to meet the cheap river transportation of the Liao by low freight rates on the railway, and I am informed that since the inauguration of the system of granting special rates for the bean freight from Liaoyang and places farther north the railway to Dalny carried about $332,000 worth during September, October, and November, 1906. A large bean-cake mill will be erected here in the early spring by the Mitsui Bussan Kaisha

BUILDING MATERIALS.

The Japanese are following out the Russian or European styles in fitting or furnishing their houses in the big cities of Manchuria. Though the greater part of the lumber now used in Manchuria comes from the Yalu, it is generally recognized by those well acquainted with the qualities of timber that the Yalu product is greatly inferior to the American and can not compete successfully with it. Great quantities of logs from the Yalu are brought to Dalny by steamer and here sawed by hand into boards and planks. This method of preparing the timber for market also places it at a disadvantage with the American machine-sawed product. The total value of lumber imported into Dalny during the three months of September, October, and November was $129,920. A cargo of Oregon pine consigned to Dalny could be landed in October owing to lack of space on the piers, so that the steamer was obliged to proceed to Newchwang to discharge.

From the published authorized statements of the total receipts of the South Manchuria Railway for the past year it appears that Newchwang easily heads the list of stations in respect of earnings. Next in order come Mukden, Hsinmintun, Menkiatun, and Dalny. The total collections of transportation charges, both freight and passenger, by the railway at the Dalny station during 1906 amounted to $369,320, while the total receipts of the Newchwang station aggregated $634,933.

THE PEKIN SYNDICATE, LTD.

The directors of the Pekin Syndicate, Ltd. have issued a circular in which they state that in consequence of inquiries that have been addressed to the secretary, and having regard to unauthorized statements in the press touching the position of the syndicate, they desire to announce that the syndicate holds £774,000 in Chinese Government gold bonds and £180,000 in cash and various investments; the financial position is, therefore, a very strong one. With regard to the Ja-mei-sen Collieries, Honan, the extra pumps mentioned in their circular of April 23d have arrived in Honan, and are now being put in position. The latest cable from Mr. A. Reid, the chief mining engineer, states that he has No. 1 pit clear down to coal. A No. 3 pit has been started, and is now at a depth of 176′. A bore-hole has been put down at a point 2,800′ south of No. 2 pit, and is now at a depth of 743′. Up to 550′ it passed through conglomerates and water-bearing strata, and only struck the true coal measures at 695′. Mr. Reid expects to strike the coal seam in this bore-hole at 900′. This would seem to indicate that there has been a fault or slip of some 300′ between the bore-hole and No. 2 pit, and in close proximity to the latter. Most probably this is the origin of the water difficulty. The board is advised, however, that this should offer no insuperable difficulty to the successful working of coal through the present pits, and Mr. Reid considers that once the difficulties of sinking are overcome an output of 2,000 tons a day may be counted on for the full period of 60 years without attempting to cross the fault. As soon as the serious nature of the water difficulty in Honan became apparent the board took steps to send out an engineer of great experience to advise with Mr. Reid and report on the whole situation. This gentleman left at the end of August, and his report may be expected before the end of the year. The issue of a permit to begin working coal in Shansi is still delayed, notwithstanding the utmost efforts of Mr. George Brown, the syndicate's agent-general in China, supported by the British Legation. This is solely due to the recent anti-foreign agitation which has strongly developed in Shansi. A recent cable, however, from Mr. Brown leads the Board to hope that the permit will be issue very shortly. As soon as the coal question is settled the directors propose to go on with iron smelting in Shansi, in which, as already stated, the Chinese Government has a participation. In view of the information now given the board do not consider it necessary at present to call a shareholders' meeting for the current year.

ROYAL JOHORE TIN MINING COMPANY

Following is the report presented at the seventh general meeting held April 20th.

Your directors submit herewith the report and accounts for the seventh year of the Company's existence, commencing on the 25th January, 1906, and ending on 13th February, 1907.

The amount of ore obtained during that period was 2,987 piculs, with an average force of 400 coolies, as compared with 2,079 piculs and 320 coolies in the previous year.

An interesting example of the type of ingenious devices invented to meet these conditions is what is known as the Lima Telephone Jack Box, a contrivance to be fastened to the telephone poles along the line, and furnishing a socket into which may be inserted a plug bearing a telephone wire. The cuts show the method of using the box and the details of its construction. The cross-section shows the plug engaged and ready for conversation. The spring jacks are made of extra heavy material and are mounted on a fibre block. The connections pass through mica bushings and are soldered to the weather-proof wire on the back of the spring jack holder. The plugs have long handles and are so constructed as to leave no metal parts exposed in the jack box. The plug is equipped with a fuse as a protection against heavy currents. The lock washer at the bottom securely holds the spring jack holder in the casing and cannot be removed without special tools. This prevents irresponsible persons from tampering with the inside of the box. In operation, communication is cut off by withdrawing the plug, when automatically the ball drops back and closes the opening against the entrance of dust, moisture and insects. A cone-shaped mouth serves to guide the plug, and in conjunction with the outer cast-iron shell of the receptacle forms a double petticoat to shed rain, sleet and snow. The device is used on the lines of the Ft. Wayne, Van Wert and Lima Railway Company, one being installed every half mile. It is also in use on the lines of the Muncie and Portland Traction Company in Indiana, and in other places. Its use has demonstrated its value in service, as it makes it impossible for any car ever to be more than a quarter of a mile from direct communication with the central dispatcher. Delays at switches on single-track roads are thus practically eliminated, and the safety and speed of operation of this class of roads greatly increased.

SALASA COPPER MINES

In the vicinity of Salasa, in the province of Pangasinan, a number of valuable copper deposits are reported and some development work has been done. The deposits are located in that part of the province formerly known as the north-west coast of Zambales. In all six claims have been staked out, the original locators being J. R. Rice and W. Crooks. There are also interested in this group, C. M. Jenkins and Colonel Kennon. One of the veins on this property is reported to be about 110 feet in width and assays of the ore are reported to be highly satisfactory.

The property is situated on the coast and the ore can be loaded on vessels with a minimum of expenditure. The harbor is protected and close to the copper there is over 20 fathoms of water.

THE ENGINEERING NEWS PUBLISHING COMPANY, NEW YORK CITY, U. S. A.—*The Field Practice of Railway Location*, by Mr. Willard Beahan, B. C. E., division engineer, Chicago and Northwestern Railway, late chief of locating party on Gould's Southwestern System of Railroads, U. S. A., is a new publication by this company that should appeal to every engineer in the Orient. It is a most valuable guide for locating parties. It contains eight chapters which deal exhaustively with the character of the road; reconnaissance for route; organization, subsistence and equipment of survey parties; the preliminary survey; geology in its relation to topography; the locomotive; train resistances and the located line, and the records and cost of surveys.

FAR EASTERN COMPANY REPORTS

VALLAMBROSA RUBBER CO.

The Vallambrosa Rubber Co., Ltd., has declared a final dividend of 40 per cent, making—with an interim dividend of 15 per cent—55 per cent for the year.

THE PATALING RUBBER ESTATES

The Pataling Rubber Estates Syndicate (Limited), operating on the Klang river has announced a dividend for the year ending December 31, 1906, of 30% which together with the interim dividend of 10% paid last November makes 40% for the year. The annual report makes a reference to the presence of tin on some of the Syndicate's property.

LINGGI PLANTATIONS (LTD.)

A wire to the *Times* of Ceylon says that the Linggi Plantations, Limited, pays a final dividend of 10 per cent, making 15 per cent for the year, and carries forward £834. The crop of rubber was 17,288 lbs.; and the estimate for 1907 is 35,500 lbs. Also that the directors' report of the Highlands and Lowlands Company, is due on the 4th June, and a dividend of about 11 per cent is expected.

CONSOLIDATED MALAY COMPANY

A special cable from London announces that the Consolidated Malay Co., Ltd., has paid a dividend of 10 per cent, for the year, and carried forward £700. The Company have an area of 4,279 acres of which 1,279 acres are planted and a large area is in course of being planted. They have 82,600 rubber trees 17,300 of which are from over 8 to over 5 years old, 63,300 over 3 years and 2,000 Rambong trees 5 to 8 years old. The amount of dry rubber produced for the year ending December 31, 1906, was 32,500 lbs. Coffee is also in bearing on parts of the estates.

DAI NIPPON SUGAR REFINERY

A general meeting of the shareholders of the Dai Nippon Sugar Refining Company was held on May 27, when a dividend for the first half of this year was declared at the rate of 20 per cent per annum.

KINTA MINES (LIMITED)

The Directors of Kinta Mines, Ltd., have declared a further dividend of 6d. per share.

ORIENTAL TELEPHONE AND ELECTRIC CO.

The accounts for 1906 show that, inclusive of £1,737 brought forward, and after deducting interim dividends, the disposable balance is £13,133. A final dividend of 4 per cent is proposed on the ordinary shares, making 7 per cent for the year, and £3,500 is transferred to reserve, leaving £1,035 to be carried forward. The China and Japan Telephone and Electric Company's exchanges at Hongkong and Kowloon continue to make progress. The electrical branch has been worked to a moderate profit; but competition in the East, as elsewhere, has been very keen.

MESSRS. VOEKEL & SHROEDER, (LTD.)

At the annual meeting of Voekel & Shroeder (Ltd.) in Shanghai a dividend of 10% was declared for the year ending December 31, 1907.

A. S. WATSON & CO., (LIMITED)

At the annual meeting of shareholders of Messrs. A. S. Watson & Co., (Limited), a dividend of 4% was declared for the year ending December 31, 1906. With the interim dividend of 4% paid in November of last year this makes 8% for the year.

TRONOH TIN MINES (LIMITED)

The remarkable announcement that the Tronoh Tin Mines had paid the shareholders of that company 127½% on their capital in the five years of its existence and that during the present year a dividend of 50% would be declared, was the feature of the annual meeting of the shareholders of the company in London, recently.

MESSRS. WEEKS & CO., (LTD.)

At the seventh annual meeting of Messrs. Weeks & Co., (Ltd.), at Shanghai, a final dividend of 6%, making 10% in all was declared for the year ending December 31st, 1907.

REUTER'S TELEGRAM CO.

The report states that the balance for distribution for the year ended Dec. 31 amounted to £4,844, including £81 brought forward. The directors now declare a dividend of 4s. per share, equal to 2½ per cent, making a total distribution, tax free, of 5 per cent for the year, leaving £108 to be carried forward.

PENINSULAR AND ORIENTAL S. N. CO.

The directors of the Peninsular and Oriental Steam Navigation Company announce a dividend at the rate of 5 per cent per annum on the Preferred stock, and an interim dividend at the rate of 7 per cent per annum on the Deferred stock of the company for the half-year ended March 31.

EASTERN EXTENSION, AUSTRALASIA AND CHINA TELEGRAPH COMPANY

The report for the half-year ended Dec. 31 states that the gross receipts amounted to £296,394 against £317,100 for the corresponding half-year of 1905. The working expenses, including £12,855 for maintenance of cables, absorb £139,549, against £135,597, leaving a balance of £156,844. From this is deducted £3,411 for income-tax payable in England and donations to China relief funds, and £15,048 for interest on mortgage debenture stock, leaving as the net profit for the half-year £138,386. After adding £88,959 brought forward, there is an available balance of £227,344. One quarterly interim dividend of 1¼ per cent has been paid for the half-year, and it is now proposed to distribute another of like amount, making with the interim dividends paid for the first half-year, a total dividend of 5 per cent. It is also proposed to pay a bonus of 4s. per share, or 2 per cent, making a total distribution of 7 per cent. for the year 1906. The sum of £75,000 has been transferred to the general reserve fund, and the balance of £17,344 carried forward. The company's New Zealand and China cables have been partially renewed during the past year, and the cost, amounting to £44,160, has been charged against the general reserve fund. With a view to further improving telegraphic communication with the Far East, the directors have obtained a concession from the Dutch Government for the laying and working of a submarine cable between Java and the Cocos Islands. The communication is expected to be opened towards the end of the current year, and will provide an alternative route for the company's traffic.

DEUTSCH-ASIATISCHE BANK

The Deutsch-Asiatische Bank for the last year declared a nine per cent dividend (1905: 11 per cent). The Russo-Chinese Bank pays nine per cent dividend (1905: 10 per cent.) and puts aside an extra-Reserve of Rbls. 400,000.

THE NEW LONDON AND AMSTERDAM BORNEO TOBACCO CO.

The general meeting of shareholders of the above company was held at the offices of the company, 54, Old Broadstreet, E. C., on March 14. Mr. Edward Dent (Chairman) presided, The Secretary having read the notice convening the meeting,

The Chairman said: On Feb. 10 last the order of the Court was given sanctioning the reduction of the capital of the company from £1 per share to 7s. 6d., in accordance with the resolution passed by the shareholders on June 25 last. Notice has been sent to all shareholders intimating that a return of 3s. a share can be made, and the majority have received this payment. The Manchester North Borneo Rubber shares are due to be delivered at the end of the month. These shares are fully paid, but the Langkon Rubber shares are only 10s. paid. Just sufficient money has been placed on deposit to meet future calls, which will be spread over the next three years. It will not be expedient to pay up these shares in full now, because any sum paid in advance of calls would not receive the 4 per cent, guaranteed by the Chartered Company, an arrangement having been made with the latter and the Langkon Rubber Co. that the calls shall be made at fixed periods. Both this company and the Manchester are actively engaged in planting rubber, and as the soil of Borneo seems very suitable for its cultivation these shares may in a few years become of some considerable value. A good many shareholders prefer that the company should retain them for the present. You will see by the balance-sheet that the property has been written down to £16,000. This is represented by some 20,000 acres, of which 10,000 are on the Kinabatangan, where some of the best tobacco in Borneo was grown. When we planted there the prices realised were always high, but the yield per acre fell short. I think that now, a company starting with sufficient capital, and planting tobacco along the river frontage, would not only secure the quality required but also sufficient quantity, as we made a good profit in one year with only a yield of 5½ piculs to the field. Having ceased all work ourselves in Borneo, we propose to reduce office expenses to a nominal amount, and wait for an opportunity of realising our remaining assets.

The Chairman then moved the adoption of the report, which was carried.

Mr. Lloyd proposed the re-election of Mr G. A. Köttgen to the Board of Directors. This was seconded by Mr. Muller and carried.

The auditors, Messrs. Turquand, Youngs and Co., were re-appointed, on the motion of Mr. Lloyd, seconded by Mr. Creagh. The meeting then terminated.

CHINA MUTUAL LIFE

In their annual report for the year ending March 31, 1907, the directors of the China Mutual Life Insurance Co. announced that the total income for the year amounted to 2,339,340.16 dollars being an increase of 18% over the fiscal year 1906.

The income from interest amounted to 274,163.86 dollars, a gain of over 110%.

The total assets amount to 4,989,042.00 dollars, a gain for the year of over 37%.

The reserve set aside to meet maturing policies to amounts to 4,296,721.53 dollars an increase of over 39%.

The surplus of assets, over and above liabilities including paid up capital amounts to 526,575.79 dollars. The total security to policy holders, inclusive of subscribed capital, now amounts to 5,508,228.82 dollars, an increase of over 30%.

CHINESE ENGINEERING AND MIN'G CO. LD.

The Chinese Engineering and Mining Company, Limited, has declared an interim dividend of 7½% (1s 6d per share) free of tax, for the half year on account of the financial year ending 28th February, 1907, payable on May 1st.

This is an unusual amount to be paid, and speaks well for the present management as hitherto only 5% has been paid.

VICTORIA JUTE CO., (LTD.)

The directors of the Victoria Jute Company, Limited, in submitting to the shareholders the accounts of the company for the year ended 31st December 1906, state that the working account for the year shows a profit of £50,969 18s. 8d. After payment of repairs and replacements, interest on loans, income tax at head office and Calcutta, expenses in connection with the recent increase of capital, and other appropriations, and including the balance £493 2s. 6d. brought forward from last account, the net profit amounts to £36,289 0s. 1d.

ABERDEEN JUTE CO.

The directors, in their report for the year ending 31st January last, state that the credit balance amounts to £3,043 9s. 11d., which with £335 10s. 9d. brought forward from the previous year places a net sum of £3,379 0s. 8d. at the disposal of the shareholders. The directors propose that this amount be applied in writing down the book value of buildings and machinery, £1,000; in paying a dividend of 1s. per share, and in carrying forward to next year £254 2s. 8d. Buildings and machinery have been upheld in good working order.—*Calcutta Capital.*

THE HOWRAH-AMTA LIGHT RAILWAY CO., LTD.

Report.—The directors have pleasure in submitting the audited accounts for the twenty-third half-year ended 31st December, 1906.

The total expenditure on capital account at that date was Rs. 17,90,006-7-11, additions being made during the half-year of new locomotives and rolling stock to the amount of Rs. 1,50,380, and an extension of the Kadamtalla workshops at a cost of Rs. 351-0-0. The total expenditure on capital during the half-year was Rs. 1,51,173-12-6.

Revenue.—The gross earnings for the half-year were Rs. 1,74,208-2-3 as compared with Rs. 1,60,978-3-9. The working expenses were 48 per cent of the gross earnings; in the last half-year the working expenses were 49 per cent.

The balance transferred to net revenue account is Rs. 72,580-5-2.

COACHING.—The gross earnings from passenger traffic for the half-year was Rs. 1,58,-026-8-3, the number of passengers carried being 4,93,279, as compared with Rs, 1,46,-576-11-6 and 4,65,879 passengers respectively or the last half-year of 1905.

GOODS TRAFFIC.—The receipts from goods traffic were Rs. 15,856-9-6, being Rs. 1,825-7-9 higher than the corresponding period of 1905.

DIVIDEND.—The amount at credit of net revenue account, including the balance of Rs. 22,054-1-9 brought forward is Rs. 69,053-15-2. The directors recommend that the of Rs. 10,000 be added to the renewal reserve fund, which will then stand at Rs. 1,00,000. After making this provision, allowing for depreciation on the machinery at Kadamtalla, providing for interest on the debentures (Rs. 9,000) and the district board's share of profits (Rs. 17,605-1-0) and transferring as a bonus to the staff to their provident fund Rs. 1,370-3-2, the net balance available for distribution is as stated above Rs. 69,153-15-2, which the directors recommend being disposed of as follows:—

By payment of a dividend of Rs. 3-8 Rs. A. P. per share (free of income tax) equal to 7 per cent per annum...	45,500 0 0
Carrying forward....................	23,553 15 2
Total......................	69,053 15 2

Martin & Co., Managing Agents.

The balance-sheet is as under:—

LIABILITIES.	Rs	ASSETS.	Rs
Capital.........	13,00,000	Block	17 90,006
Debentures...	3,00,000	Stores, &c	33,464
Reserves	1,04,736	Outstandings ..	5,616
Other Debts.	1,28,301	Cash	73,005
Profit & Loss.	69,054		
Total.....	19,02,091	Total...	19,02,091

THE HOWRAH-SHEAKHALLA LIGHT RAILWAY CO., LTD.

REPORT.—The directors have pleasure in submitting the audited accounts for the past half-year ended 31st December 1906.

The total expenditure on capital acccunt at that date was Rs. 6,14,396-8-4. There was no expenditure during the half-year under this head.

REVENUE.—The gross earnings for the half-year were Rs. 46,158-2-0, as compared with Rs. 43,863-1-6 for the corresponding period of 1905.

The working expenses were Rs. 26,831-6-11 or 58 per cent of the gross earnings, as compared with Rs. 24,993-14-7 in the corresponding period of 1905. The balance transferred to net revenue account was Rs. 18,299-14-2.

DIVIDEND.—The amount at credit of net revenue account including the balance of Rs. 496-13-10 brought forward is Rs. 15,228-10-5.

The directors recommend that the sum of Rs 2,000-0-0 be added to the renewal reserve fund which will then stand at Rs. 23,000-0-0.

After making this provision, allowing for the district board's share of profits (Rs. 1,280-11-9) and the bonus to the staff (Rs. 457-10-9) which is transferred to their provident fund, the net balance available for distribution is as stated above, Rs. 15,228-10-5, which the directors recommend being disposed of as follows:—

To payment of a dividend of Rs. 2-8 per share (free of income-tax) equal to 5 per cent. per annum............	15,000 0 0
Carrying forward......................	228 10 0
	15,228 10 5

Martin & Co., Maneging Agents.

The balance-sheet is as under:—

LIABILITIES	Rs.
Capital..	6,00,000
Reserves..	23,000
Debts..	13,368
Profit and Loss..............................	15,228
Total	6,51,596
ASSETS	**Rs.**
Block..	6,14,396
Stores...	9,500
Outstandings..................................	74
Cash..	27,626
Total.........................	6,51,596

MINING IN F. M. S.

In the course of a journey from north to south of the peninsula, the writer collected the opinions of many leading members of the Malay mining world as to the present outlook. The views expressed bear so marked a resemblance that only a few selected opinions will here be given,—the opinions of men who should need no introduction to the majority of the readers of this paper.

STEADILY INCREASING YIELDS.—Mr. Chappel, of Messrs. Osborne & Chappel, thus sums up his views:—"I do not think there is any reasonable possibility of the aggregate yield of tin from the Federated Malay States rapidly increasing. Although a few large plants are now being installed, such as at Redhills and Rambutan, and will, if as successful as we have cause to anticipate, doubtless lead to the rise of similar enterprises calling for capital and mechanical skill, the steadily increasing yields from these concerns will be more than neutralized by the falling-off in returns from the shallow deposit worked on the Chinese system."

Confirmatory of this, the opinion of Mr. Liong Fe (owner of Tambun and member of the Perak State Council) may be given:—"Relying upon the small workers, the yield must dwindle, for the easily treated deposits are nearing exhaustion. Whether the industry in Perak expands or not depends largely upon outside capitalists and investors, to whom we look for the money to bring the deeper deposits to a producing stage with suitable mechanical appliances."

Mr. O'Brien, the Californian manager of Bruseh, notes, in reply to a query:—"The most striking feature of mining affairs at present is the losing of ground by the wasteful Chinese miner, who has practically picked the eyes out of the country, and the advance of the white miner, who is making excellent profits out of ground the Chinese could not touch."

Mr. Foo Choo Choon, vendor or owner of the Tronoh, Kledang, Chankat Pari, Sungei Besi, and other mines, accentuated, through his interpreter, the necessity of adopting machinery to displace labor. The price of tin he considers more or less self-regulative; if the price increases, a bigger output will be recorded, bringing it down again. "If the price remains where it is now (about £200 per ton at time of conversation), the yield will certainly advance in magnitude."

WELL-NIGH INEXHAUSTIBLE.—In striking contrast to the average, appears the opinion of Mr. Ng Boo Bee, owner of Kamunting and employer of 4,000 coolies:—"The tin is well-nigh inexhaustible, but cannot be won owing to labor shortage. Immigration from China is at a standstill owing to the increased prosperity of that country and its railroad-making activity. This circumstance checks the yield and will result in the high price of tin being maintained." Like many other mine-owners, Mr. Boo Bee also had a word of censure for the Government's system of taxation, or more particularly, for the heaviness of the duty.

Mr. H. E. Nicholls, Superintendent of the Pahang Corporation, refers to the prospects of the Eastern State thus:—"A considerable experience of the old deposits, both alluvial and lode, convinces me that no satisfactory results will be obtained therefrom; the deposits are far too uncertain and irregular to be worth opening. Occasional rich pockets are met with, but these are few and far between. Encouraging results have certainly been obtained from alluving, though, so far, nothing to compare with the deposits on the western side of the peninsula have been met with. Whether the opening-up of the country will develop richer fields, is an open question. The lode deposits of the Kuantan District certainly have a big future before them.

GENERAL OUTPUT.—Mons. Legros, manager of the French Mining Company, is strongly in opinion that the output of the Malay States will continue to decrease, owing to the dearth of the surface deposits, and that the opportunities of the European investor and engineer will proportionately increase. He doubts whether the opening of the application books would greatly affect the position. Kinta is likely to maintain its pre-eminence for years to come.

Mr. Chun Thye Phin, M. C. (owner of mines in Gopeng, Taiping, and Tronoh districts):—"I do not look for any general expansion of the industry. We are now greatly troubled with our coolies, who are independent and desert freely. In view of these labor troubles, I have installed training services where possible, and lengthened the working day."—*Penang Gazette.*

THE NUMBER OF CHINESE ABROAD

According to the latest Chinese official investigation, the total number of Chinese in other countries is as follows, not including the students:—

Japan, 17,673; Russian Asia, 37,000; Hongkong, 314,391; Siam, 2,755,709; Burma, 134,560; Java, 1,825,700; Australia, 34,465; Europe, 1,760; Corea, 11,200; Amoy, 74,500; Malaysia, 1,023,500; Annam, 197,300; The Philippines, 83,785; Africal, 8,200; America, 272,829; total 6,793,531.

OPENING UP NEW AUSTRALIAN TERRITORY

Consul F. W. Goding, of Newcastle, reports that the Territory of Northern Australia, until now held by South Australia, is to be taken over by the federal government. This is a subtropical region, with an excellent river system. The Victoria River alone drains 90,000 square miles. There are about 60,000 sheep in the country, while of cattle one ranch alone has 60,000 to 70,000 head. The mineral deposits are abundant, there being a wide stretch of tin-bearing country, while gold and copper are also found.

PERAK, THE PREMIER SECTION OF THE FEDERATED MALAY STATES

The Federated Malay States have already been dealt with on general lines, but I may perhaps give a few remarks concerning the premier state of Perak, which has been so considerable a factor in the successful rise of the F. M. S. during the last thirty years. Its figures have really advanced in a progression that seems almost to pertain to the fairy book. Thus the revenue for 1906 is expected to realize over 13 millions of dollars. The Perak balances on Dec. 31, 1906, will be about $15,400,000. Under these flourishing circumstances the High Commissioner has sanctioned an extended Road Programme for 1907, and the Lower Perak District has been chosen. It will be connected with Kinta and Batang by road for the first time, and the new roads are estimated to cost $805,000, say near £100,000. This is in addition to the normal. Owing to rubber, land revenue has increased $50,000 in Perak, and the tin duty being on a graduated scale augments the revenue from the high quotation reached by the metal. The collection in 1906 would probably be $5,000,000, a sum handsome enough to lead to many forward movements.

In Thaiping, the seat of the Residency and the capital of the State, there are some changes and improvements, though the place in general aspect seems much the same. There is a fine new block of Government buildings, and the museum has been put into good order. The block of buildings comprising the gaol, on the most modern lines, is about to be considerably added to, and will be constituted into a Federal Gaol, where long sentenced prisoners from all the States will serve out their sentences. This will separate the more hardened class of criminal from the only casually criminal, and should likewise prove more economical in the long run. For the incorrigibles deportation is resorted to, that is amongst the Chinese. They are sent back to China. Passage is paid for them, clothes provided, and a sum of $6 each placed in their hands wherewith to begin a new life either of usefulness to the community or a further career of crime on shores that do not affect the F. M. S. From the gaol let us look at the hospital situated in its fine spacious grounds laid out with such care. Here all is in good order, whilst one is attracted to a building at the extremity of the grounds where the indigent paupers are looked after. It was formerly the custom when tin ore was being weighed for assessment of duty that the weighing took place without fee being imposed. The idea was then mooted—the author of which I was not acquainted with—that a small fee should be imposed, and the resultant sum used to provide for those in need. The mine owners readily agreed, and a fee of 3 cents a picul was imposed that has provided an ample fund for the purpose for which it was intended. Indeed, in Perak there is a surplus, I understand, in this, what I may call, "3 cent provident fund," of something over $40,000. In November, 1906, only the figures for 1905 were available. In that year 216 persons, mostly Chinese, had been cared for, and there were 125 inmates on the last day of the year. The men are not under more than voluntary restraint, and they may, if so disposed, carry on certain trades and earn independent money. They seemed happy and contented, besides achieving which result the institution frees the streets of beggars, paupers, and those whom affliction or disease has prevented earning a livelihood. The suggestion has been an excellent one, and has wrought much good throughout the States. In relation to hospitals I may note in Mr. Birch's last report, that for 1905, he records with pleasure the good work that is being done in the private hospitals for women established by Dr. Wright in Thaiping and carried on by Dr. Connolly in Ipoh. Dr. F. E. Wood, in writing of the District Hospital, Larut, points out that the number of venereal cases treated was 650 less than in 1904, and he attributes this result to the establishment of Dr. Wright's hospital.

Thaiping and Perak generally is enthusiastic over its Rifle Association, and it has some reason to be proud of its records. It has likewise enthused the ladies, who have their own association. I was privileged to be present at one of the meetings on the excellent range of the M. S. Guides at Thaiping. It was a pleasure to see the enthusiasm shown and the several creditable scores that were returned. It is a wholesome thing that women dwelling amongst considerable alien populations—even when, as in the F. M. S., the risks are reduced to a small compass—should possess some knowledge of firearms and how to use them.

When you are at the rifle range you are near the road that leads up to that agreeable, if sometimes foggy, climate to be found on Thaiping Hill. At its summit, or say anywhere above 3,000 ft. up to the highest point, say, very near 5,000 ft., you may get a climate approaching that at home, and where the thermometer even at mid-day does not struggle up more than a few degrees over 60 Fahr. Here one may recuperate, enjoy cold nights, a warm fire, and such things that are not usually associated with Malaya. There is a good road up, but one feels inclined to dream of a railway which would open quite a residential quarter easily attained. The elevation and conditions beat Penang Hill, and it is almost as easy of access. One might look on this hill as a sanatorium for the white troops at Singapore, and where a school might be conducted for white boys under far more advantageous lines than could ever be attained on the sea level or thereabouts. Such a school would approach home conditions without the necessity of going home at all. Readily accessible, by, say, a railway, Thaiping Hill might be made of value to the health of the whole white community. At present there are only a few Government bungalows, which are also loaned to others than Government servants when not wanted by them. Thaiping is being improved in the matter of the lake and gardens. Several of the unsightly mine holes have been filled up, and spots thus found for dumping mining silt. This is done at no cost to the State, and I imagine has checked the breeding grounds of the pestiferous and poisonous mosquito. A portion of the lake enclosure is being devoted to planting specimens of all the best hardwood trees in Malaya. By the way, the avenue planted by Sir Hugh Low in the main street of Thaiping still flourishes, as do the teak trees planted also by that Resident, to which the States owes so much, between Kwala Kangsar and Padang Rengas. Seed has been preserved, and other roadsides are to be similarly adorned.

And now I would pass on to Kwala Kangsar, where the really chief thing to note is the higher Malay School to which I have already called attention in my letter on the F. M. S. A capital site has been retained for the new buildings, and the recreation ground has already been laid out. Near by is the Malay Art School, where an excellent attempt is being made to revive Malay industries. Here sarong weaving is carried out, pottery made, silver ware worked, and wood carving carried on. These industries were sorely in danger of dying out. It is to be hoped that they will have been rescued from their moribund state. At this, the Malay capital, his Highness the Sultan graciously received us. He is known to many in London where he was last on the occasion of the Coronation. His Highness is much beloved by his people, and stands high in the Malay world as a good ruler. Of other matters I may note that the well-known Enggor pontoon bridge, so often carried away, still spans the Perak River at some distance below the railway bridge. It has been suggested that as a result of the latter the pontoon bridge should be transferred to Blanja, where it is thought it would now be of more real service. And before leaving Kwala Kangsar one may note that the pass between there and Thaiping still retains its many beauties, amongst which is the commanding Gunong Pondoh at its Kwala Kangsar end. The railway now traverses the pass, but the road through is still excellently maintained, as I discovered when the Resident motored us through on the excellent little car that the Sultan kindly lent us.

The mining capital of the State is at Ipoh, which I found had nearly grown out of recollection. The Chinese town has greatly increased, the European population has practically doubled, and improvements have been made on every hand. One wonders in such an alive spot, which one might almost dub "motocaria" from the comparatively large number of cars that are always about, that Ipoh has not demanded the electric light. The necessary water power, as in the case of Kwala Lumpur, must be available at no great distance, and would provide both public and private lighting. At present the Lux light is in favor for street lighting, and is efficient when properly looked after. But this does not seem to be done as carefully as might be, viewing the number of lights that seemed to be always shut off. Ipoh also boasts of a fine new Court House, of a new bridge over the river to Brewster Road; it is going in for a deflection of the river and reclamation of a considerable piece of useful land as a result; the price of land has greatly enhanced, and there is a splendid new Chinese theatre, besides the fine Panglima Street. The old Government offices remain picturesque in their Malay architecture, and it is adjacent to them that the memorial Clock Tower to the murdered first Resident, Mr. Birch, will be erected. There is also to be a bronze bust of Mr. Birch, which is being executed by Mr. Hamo Thornycroft. The idea of perpetuating the memory of Mr. Birch is excellent, for his loss led to the States being taken in hand, and the consequent progress that can now be seen. One wonders, however, why Ipoh has been elected as the site of the memorial and not some spot nearer the scene of the untoward murder. Perhaps Ipoh is selected from being the most important town in the State. Of other towns one may note the prosperity of Batu Gaja and the growing importance and advance of Kampar. There is also the agricultural settlement at Setiawan, where some 300 persons from Foochow have settled down. Live stock occupies much of their attention, whilst there were no less than 20,000 rubber trees planted at the end of 1905—a number that has since been considerably increased. No wonder we are told that every encouragement is extended to the experiment.

THE KRIAN IRRIGATION CANAL

One of the most far-reaching improvements that has been carried out in Perak for a long time has been the Krian Irrigation. It is truly a magnificent work, and should confer very great benefits on the district and the State. The formal opening took place in August last, when the ceremony was performed by the Resident, Mr. E. W. Birch, C. M. G., before a large gathering of Europeans and Natives. The district is eminently suited for the growth of padi, but the rainfall has proved so fitful that the cultivator could never depend, say, on two crops in successive years. The project now completed has been under discussion for over fifteen years; now it is realized, and over 50,000 acres have been added for annual cultivation. Like all such projects the cost has steadily risen over the original estimates. The work began in 1899 on an estimate of roughly three-quarters of a million dollars; it was completed in 1906 at a cost of something over $1,500,000. The Perak finances could fortunately bear this cost for a work which, as Mr. Birch pointed out, will some day enable the inhabitants to raise a rice crop from about 70,000 acres of land, which will give the people a potable, if not perfect, supply of water which will enable them to make the land of their adoption a permanent home, and which will result in their building for themselves houses of a more durable and comfortable type. With assured crops we may hope for the establishment of rice mills, say on the Krian and Kuran rivers, and the people may anticipate better prices without paying for the maintenance of an army of small middlemen. The work is truly a grand one, and can scarcely be considered to be over capitalized at $22 per acre, which is what the cost of the reclaimed land with its 56 miles of canal works out at.

A word finally on the happy system of work that prevails throughout Perak. All who know Mr. Birch know what an energetic official and efficient Resident he makes. He has the faculty of enthusing most of those under him with the same tireless species of energy. He

certainly succeeds in getting his men on to the same end of the rope, and inducing them to pull with him and with each other. He is down on a shirker or a slacker, and such may probably soon find himself moved elsewhere. Good men are attracted, and he himself indents for a good man for Perak whenever he comes across or hears of one. Indeed it is reported, how truly I will not vouch for, that another Resident asked for a good officer for some department, and the answer came back: "None such available." All good officers have been absorbed by Perak. Of course, this does not cover officers of the Federal Government. However, it speaks well, and accounts possibly for the work and the system carried on in Perak.—*London and China Express.*

The bridge is to have two main steel lattice girders of about 100 feet span between centers of supports and 30 feet span cross girders to be fixed on lower booms of main girders carrying road platform and also cantilevers carrying side footways.

The two main girders are to be placed 30 feet apart clear width of roadway or 32 feet, 6 inches apart center to center of girders.

THE AEROGRAPH

There are various methods of applying a coat of paint to a surface, and the usual Indian *mistri's* method of daubing it on with a rag is unknown to Western craft, except in the nursery stages of artistic endeavor. The spray system of applying paint or wash is the latest and most efficient system, particularly for covering large surfaces, and the illustration to this article shows the "aerograph" plant. To quote a home contemporary on the subject:—

"Take its use with any of the washable distempers. It will, without any disturbance, evenly distribute a new coating upon present work without any danger of rubbing up, streakiness or washing off, and in so little time as to be less trouble than a dust-down or wash-over. The spray drives the color into all the interstices of enrichments leaving a beautifully fine stipple-like surface. It leaves no splashes about to be washed off anywhere, and the whole thing is done from the floor in the same time that it now takes to land two men and their scaffolding on a job.

"Then take an outside, stucco-fronted house job. How rapidly it is thoroughly coated from top to bottom—the work of at least four men done in less than the time of one of the four.

"A machine that will evenly distribute a coat of paint thickly or thinly in fine, sharp lines, or cover an area a yard in diameter at will, and only requires the same guidance that the water-can does, has a future to be reckoned with."—*Indian and Eastern Engineer.*

ESPERANTO SOCIETIES

The Philippine Esperanto Society was organized at Manila July 1.

The *Singapore Free Press* announces that the Malaya Esperanto Society has chosen W. G. St. Clair for acting president and S. C. de Souza for acting secretary to complete the term until the annual meeting in December, owing to the departure to Europe of the president and secretary elected for the year.

RAILWAY STATION AT SEREMBAN, NEGRI SEMBILAN, ON THE F. M. S. RAILWAYS SYSTEM

COOLIE LINES, NEAR SEREMBAN ON THE F. M. S. RAILWAYS SYSTEM.—TYPICAL BUILDING OF THIS CLASS

FEDERATED MALAY STATES RAILWAYS

The main trunk lines of the Federated Malay States Railways enters the province of Perak at Parit Buntar on the North and joins the section running through the province of Selangor on the south at Tangjong Malim, the distance between these two points being over 165 miles. The main line continues southward through Selangor for a distance of 81 miles passing through Kuala Lumpur and Negri Sembilan. With the branch roads The Federated Malay States Railways system includes about 400 miles of track.

Other lines are under construction through Pahang and surveys have been completed for the route through Kelatan to Kota Bahru at the mouth of the Kelatan on the coast of the China Sea.

The illustrations refer to the railroad station at Seremban the capital of North Sembilan and coolie lines near Seremban.

These buildings are typical of the respective classes to which they belong.

SUNGEI PENANG BRIDGE

The Municipality of George Town, Penang, has entered into contracts for the construction of a steel bridge over the Penang River on the Jelutong Road which will cost upon completion almost 100,000 dollars silver. The contract for the construction of the abutments, wing walls, etc., has been awarded to C. E. Peterson, the price being $45,290 and the tender of Tan Yee Koon for the filling in and road approaches, pitching, etc., at a cost of $12,000 was accepted.

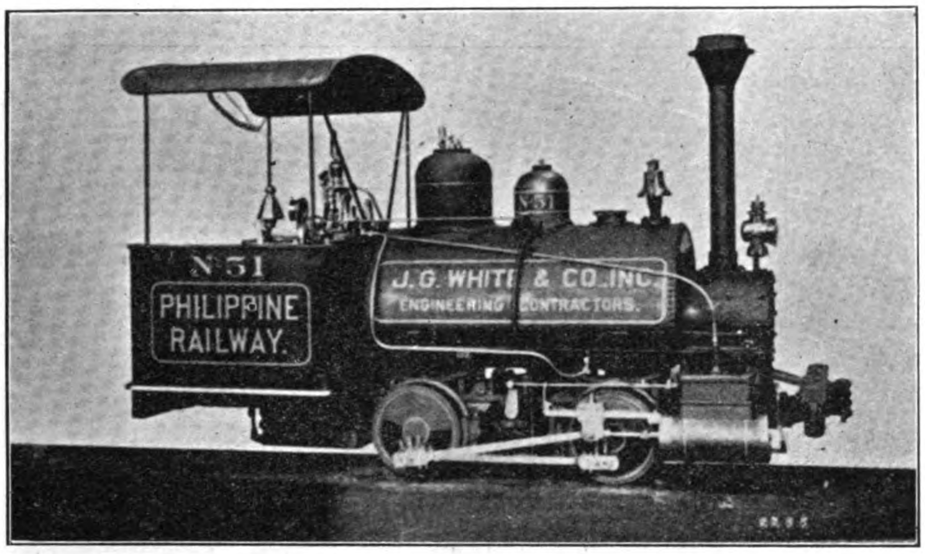
Messrs. Howard Erskine & Co. were awarded the contract for the construction of the iron work and its erection on the abutments. The price agreed upon was £3,331 3s.

The contracts provide for the construction, supply and erection complete of all steel and iron work required for the bridge and its maintenance in good order and repair for a further period of six months.

RAILWAY AND MINING DEVELOPMENT IN CHINA

The reorganization of China has been termed the world problem of the twentieth century, and whether in retrospect it may appear as far reaching as it does in prospect, there can be no doubt that for existing States and political relations its potentialities are vast, and the effects possibly imminent. It is customary to regard the character and policy of Oriental countries, and especially of China and Japan, as largely inscrutable to Western minds; but this vein of thought is little more than the measure of our ignorance of the people and the land —an ignorance which is, perhaps, the most primary reflection presenting itself when we approach the consideration of the current position. One has only to remember the mutually exclusive opinions common as to the ethos of the Japanese nation to realize how complete a bar an entire unconformity ol language, literature, and conventional signs presents— a difficulty vastly increased in the case of China by its size, variety, and retarded development. Mere geographical aperception is an obstacle through varieties of spelling and unintelligibility of names, to say nothing of the absence of maps on the scale we possess for other countries. Upon this country, owing to the competition of the Europeanised nations, modern material progress is being rapidly forced, which in the present stage of development of that large and densely populated empire may for practical purposes be considered as railway construction. In the north the transformation is most marked, as, owing to the great political interests involved, money has been poured out abundantly, and Peking and Manchuria now possess railway communication for which they would have waited many years had private or native capital been requisite for its construction. Semi-political considerations also apply to the communications of Peking with the coast, and of Tsingtau with Chinan. Of strictly inland communications there is a big line from Peking to Hankow, connecting the capital with the central provinces. With this exception, however, practically all the railways outside of North China at present working are feeder lines. They are Shanghai to Woosung, which is being extended to Nanking, and will be finished this year; P'inghsiang to Liling, by which fuel is transported to the Shiang river for the Hanyang ironworks and Hankow. There is a small section of railway from Canton to Samshui, open in Kwangtung; and a small feeder line which connects the Hankow-Peking railway with the Peking Syndicate's mines in Honan. Of lines under construction, the most noticeable is the extension of the trunk Peking-Hankow south to Canton, from whence, as we were reminded by a

share issue in this country recently, an extension to Kowloon is in progress. In the south-west the Tonkin railway is under construction as far as Yunnan. A short line is being run from Swatow to Ch'auchou-fu. As we have seen, the Shanghai railway is being completed to Nanking. In Honan, K'aifeng and Loyang are being connected, while further north a feeder line is being run from the main trunk at Chenting to T'aiyuan. North-west from Peking itself communication is being opened with Kalgan beyond the Great Wall. Of projected lines, the most important is the westward extension from Hankow through Hupeh into Szechwan. The Shanghai-Nanking railway will be extended in a southerly direction along the coast as far as Ningpo. Canton, besides the line to Kowloon, will be joined to Amoy and Kanchow-fu in the Kiangsi province. In the same province, Kiukiang and Nanch'ang-fu also are to be connected. The enumeration of these various enterprises, not to mention those less definitely projected, though possibly somewhat unintelligible without the assistance of the map, serve, at any rate, to indicate how extensively the idea of railway construction is being accepted in China, where not long ago it met with equally general hostility. The effect of this policy upon mining and its allied industries, both directly and secondarily as departments of commercial activity, must be of great and increasing importance. China is recognized as being in many provinces extensively mineralized, and there is at the present time considerable prospecting activity. In addition to natural resources, moreover, the Empire possesses what, when conjoined to natural wealth, is perhaps of even greater importance—viz., unlimited labor and a vast home market. These circumstances give a special importance to the coal and iron resources of the country, which are known to be of great magnitude. A promising start has already been made in the production of iron, the exports of which increased from 981 piculs in 1903 to 201,848 piculs in 1904 and 413,209 piculs in 1905, the latest year for which statistics are available, during which year the Hanyang ironworks supplied over 30,000 tons for export. The other metals exported in 1905, of which record appears in the Imperial Maritime Customs returns, were 94,327 piculs of antimony and antimony ore, as compared with 116,434, 141,662, and 180,150 piculs respectively for each preceding year back to 1902. There was a small and declining output of quicksilver amounting to 279 piculs in 1905. The tin output of China is a matter on which considerable uncertainty exists; the exports, however, are given as follows:—1902, 64,284 piculs; 1903, 41,527, piculs; 1904, 50,391 piculs; 1905, 75,302 piculs. In each case the export is practically exclusively derived from the Mengtze district of Yunnan, and is practically all exported to Hongkong. Whether it reaches that port via the Tonking railway, and is thence distributed again into China, or figures as a genuine export oversea, the Customs returns do not make clear; at any rate, there seems to have been a slightly largely amount of tin available from China in 1904-05, as, while the exports were higher in the latter year, the imports were in 1904, 63,950 piculs; and in 1905, 54,170 piculs. So far, however, as affects the metal markets of the world, China is of more importance as a consumer than producer. All will remember the effect produced upon the copper market by the Chinese purchases in 1904 and 1905 for their copper coinage requirements; and if, as has been stated of late, a gold currency scheme were to be adopted, the enormous volume which Chinese trade would be likely to assume, were there a credit system commensurate with that enjoyed by Europe, would undoubtedly make considerable demands upon the existing gold supplies of the world, which, in the opinion of some economists, at any rate already support as much credit canas be reasonably expected. Of the commercial importance of the organization of China upon modern lines, such as has been accomplished by Japan, it is unnecessary to speak, as given national stability it could probably absorb and return good interest on most of the surplus capital which European and American investors are likely to have available over a lengthy period of time. As regards mining investments, however, the conditions are at present exceedingly unsatisfactory. A code of mining regulations was promulgated in 1902 which, in addition to uncertainty of title, fixed royalties of five per cent on the output of coal, iron, antimony, alum, and borax, ten per cent on petroleum, copper, lead, zinc, sulphur and cinnabar, 15 per cent on gold, silver, galena, and quicksilver, and 25 per cent on diamonds and crystals; in addition to which 25 per cent of the surplus, if any, remaining over after the replacement of capital and repayment of interest is claimed as a further royalty. These regulations have since been amended under Articles 9 of the British and 7 of the United States commercial treaties with China executed in 1902 and 1903 respectively; but the new conditions are said to be even more impracticable than those of the 1902 regulations. One serious difficulty would appear to be that uniformity can only be obtained by the creation of some central department of mines, and at present so far as it is possible to judge, the central government does not possess the power to secure the effective observance of such a code by the district and provincial authorities.—*The Mining Journal.*



TYPE OF LOCOMOTIVE ON PHILIPPINE RAILWAY CO.'S LINES

PHILIPPINE RAILROAD CONSTRUCTION

The work on the proposed lines of railroad in Luzon is being carried on with vigor and the results have exceeded expectations. On the line running north from Dagupan, to San Fernando de Union, fifteen kilometers have been graded and rails laid for ten kilometers.

On the Camp One branch of the Dagupan-San Fernando line from San Fabian to the Benguet Road, eight kilometers have been graded.

Ten kilometers have been graded on the San Pedro Magalang line connecting with the main line of the Manila Dagupan, and on the San Fernando de Pampanga Florida Blanca branch grading has been completed for twenty-four and one-half kilometers; the rails laid for nine kilometers while some ballasting has been done.

On April 17, the Manila Railway Co. began operating the Mariquina-Montalbon branch. This line is 12.9 kilometers in length.

Thirty kilometers of the Manila-Batangas branch have been graded and the rails laid for about two kilometers.

The grading on the belt line in Manila, covering a distance of 9.50 kilometers has been completed.

Ten kilometers have been graded on the Cavite branch or better known as the Cavite short line. This line when completed will cover a distance of 32 kilometers.

The Philippine Railway Co. has completed the grading of 40 miles of the Cebu road and 12 miles of steel have been laid. This work is divided equally north and south of Cebu.

In Panay 20 miles between Iloilo and Pototan have been graded and about three miles of steel laid. Some steel has also been laid in the Iloilo yards.

For the present, construction work has been suspended in Panay on account of the rainy season, and in Cebu it is not expected that much will be accomplished until it is over.

The probable average of hours of clear weather per diem during the rainy season will govern the extent of the operations of the company.

Supplies for the Philippine company are coming in regularly. In all there is sufficient steel in the company's warehouses to lay 80 miles of track. By December the supplies for the construction of all the buildings will have arrived and with the closing of the rainy season in the Visayas and Cebu all work will proceed with renewed vigor. At the present time a small force is working on the proposed building in Cebu, more to familiarize the employees with that class of work so as to be prepared to undertake the more extensive construction after the materials arrive. The steel bridges are expected to arrive in October.

A. K. LA MOTTE BOOK EXCHANGE

A. K. La Motte, the pioneer dealer in books and contemporary magazines, is ever extending his business to keep pace with the growing demand for scientific works in the Philippines. The headquarters at 72-74-76-78 Calle Real, Intramuros, is stocked with probably the greatest collection of valuable works on electrical, mechanical and mining engineering, in the Far East. These volumes are carefully selected and represent the most advanced thought along these lines.

Mr. La Motte takes a great personal interest in catering to a large clientele among the scientists and engineers which is constantly growing.

From a small beginning this firm has grown to be one of the most important in its particular line in the islands. Mr. La Motte sacrificed his business interests in the homeland to follow the American flag to the Philippines and was patriotic enough to remain and cast his lot with the islands and their future.

When Mr. La Motte started in business in the Philippines he decided to work on a strictly cash basis. Every dollar's worth of stock in his establishment is paid for and it is rarely that the value of the stock in hand is less than ₱30,000. He makes a specialty of handling magazines and periodicals and imports as high as two tons of these publications on each

mail steamer that touches at Manila, the largest amount ever consigned to one dealer in the East. These periodicals represent the best literature of the world and they are distributed among Mr. La Motte's customers throughout the length and breadth of the archipelago.

Mr. La Motte is interested in many of the leading commercial enterprises of the Philippines. Among these are the Benguet Consolidated Mining Co., the Eastern Mining Co., and the Manila Building and Loan Association. He was one of the original promoters of the Manila Merchants' Association and one of the first directors of this enterprising organization. In view of his remarkable ability, he was selected as chairman of the legislative committee of this body.

A. K. LA MOTTE

In connection with his extensive business, Mr. La Motte has established a curio department which is of the greatest possible interest to tourists and visitors to the Philippines. His collection of curios includes the characteristic product of almost every wild tribe in the islands and has been conceded to be the most extensive to be found anywhere in the Philippines.

Mr. La Motte believes in giving his patrons every comfort and attention and has added to his establishment a confectionery section where nothing is left to be desired. This business so successfully developed is the work of a little over three short years of well directed effort.

JAPANESE TEXTILE MACHINERY

One of the most interesting sights at the exhibition was the three new Japanese-invented looms, and, as showing what Japan is doing in invention, they are important. They are inferior to the British and much inferior to the American looms, but are ingenious, and illustrate the growing determination of the Japanese to strike out along new lines and to manufacture their own textile machinery as well as their own textiles. What first strikes one is the amount of wood used. The frames of all three are of wood, and wood is used wherever practicable, such as loom beam heads, whip rolls, levers, shuttle boxes, etc. The largest loom was labeled "The one Tsuda system Habutai Power Loom," and was made by the Matsuwo Works, Azabuku, Tokyo. It is used for weaving the transparent silk habutai about 36″ in width. Except for the wood used and modifications in details this loom is not important.

The next loom was for weaving silk or cotton cloth about 24″ wide and was notable for its method of harness raising for its stop motion, and also for being self-contained; that is, no driving belts, pulleys, gears, or levers being outside the framework. The driven pulley was under the loom at the middle of the cam shaft and was belted from below, and belt shifted by foot lever at front of the loom. There were no cams, treadles, or strapping used to operate the harness. The two harnesses used had wooden ends and slide in grooves in the framework. To the center of each heddle frame end was fastened a curved iron rod, the other end of which was attached to a short-screwed crank arm on the cam shaft. As the cam shaft revolved, this crank arm through this rod imparted a reciprocal up and down motion to the harness, and by means of the set-screwed crank arm their motion relative to each other and to the lay could be adjusted. The width of shed could be regulated by changing length of rod where it joined the crank arm. The picking motion was also peculiar. While the picker stick was thrown with cams, levers, and lug straps in the usual way, the picker stick proper was under the loom and half the usual length. It was of wood, but at the top there was hinged by means of a screw an iron rod that ran out horizontally and curved up into the shuttle box, and the end of this rod carried the picker firmly attached. With this arrangement, owing to the hinge construction, the picker moved in a straight line, and there was no need of any parallelization of the picker stick motion. This loom also had an ingenious warp stop motion attachment operating through the heddles.

The third loom was used for weaving the narrow print cloth that is usually made about 13½″ wide. It showed more points of dissimilarity from the usual styles, especially American makes of looms, and so was of more interest than the others. No lug straps were used, but the power was applied to the picker stick by means of a lever striking a casting on foot of picker stick. The foot of the picker stick was bolted into a casting that was pivoted on a horizontal bolt from another casting on the end of the sword rock shaft. A wooden lever was pivoted at the back of the loom on the side, and its front end rested on the projecting casting attached to the foot of the picker stick. An iron piece with projection was bolted to the middle of this lever. The end of cam shaft projected beyond the loom and carries a free roller on the crank pin of a short crank arm set-screwed on the end of the cam shaft. As the cam shaft revolved, the roller was carried around and strikes the casting on the lever, which was forced down and struck the projection on the pivoted casting carrying the picker stick, thus causing loom to picker. The picker stick is brought back into position by a spring arrangement. Of course no parallelization of the picker stick was possible. The picker was loose on the end of the picker stick and kept in position by the sides and tops of the wooden shuttle boxes. This picking motion is patterned after a common English make, but is modified. The shuttle boxes being made of wood there is no binder used to check the shuttle and prevent rebounding. The checking is accomplished by two loops of leather, one inside the other fastened with thumbscrew to projection under end of the lay.

The last two looms were made by the Toyoda Shokai Company at Nagoya. The company makes in all four styles of looms, *viz*: (1) The wide loom for 30 to 36″ cloth with iron frame. This loom has not been a success—50 tried at the Kanegafuchi mills are to be replaced with English looms; (2) the narrow loom with iron frame; (3) the narrow loom with wood frame; and (4) the narrow loom with wood frame and automatic stop motion. The No. 3 is the most popular. It is stated that this factory has sold between two and three thousand of that loom, and are now making 300 a month. There are 230 of these narrow looms used in a branch of the Miye mill at Nagoya, but the majority of them go to small hand and power loom establishments scattered throughout the Empire. A large number of these small establishments are operated by various kinds of power, steam, water, oil, etc., the majority, however, probably being run by gas engines. The price of this narrow loom with wood frame is only ¥95=$47.50, so it is the cheapest loom of any efficiency that can be obtained for this purpose.

JAPANESE TRAINING SHIP, THE TAISEI MARU

The Japanese steel training ship, Taisei Maru, is perhaps the most modern of its kind in Far Eastern waters and splendidly equipped for the purpose for which she was designed. The following description will be of interest:

1. *Principal Dimensions.* Length between Perpendiculars, 270′-0″, Breadth, moulded, 44′-0″, Depth, moulded 26′-9″; Height of Tween-decks 7′-6″; Gross tonnage 2298.15.

2. *Genneral Description.* This ship is built to a model approved by the Nautical College (Shosen Gakko) of Tokio, and fulfils the requirements as a Training Ship. She is a 4-masted barque, provided with two sets of auxiliary engines, driving twin screws capable of steaming her at the maximum speed of 10 knots per hour, on fully loaded condition. She has two complete decks, and full poop, midship houses and topgallant forecastle; handsome outwater stem and elliptic stern. There is accommodation for 13 officers, 120 students and 54 crew.

Double cellular bottom, extending from after end of Engine Room to forepeak, and deep tanks before and abaft the machinery space.

3. *Class and Certificate* Built of Steel of the best quality, except where otherwise specified, in accordance with Japanese Government Shipbuilding regulations and Lloyds Rules, for two-decked sailing ship, with additional requirements for steamer in way of the machinery space, the aft-peak, etc.

The hull and machinery are constructed under Lloyds Special Survey, and classed 100 A1., M. C., having Lloyds Freeboard mark on ship's side. All necessary certificates are supplied.

4. *Stability.* Complete set of stability curves, for varied conditions of loading are supplied, and the height of the centre of gravity ascertained by inclining experiments to satisfaction.

5. *Materials.* All the materials tested to the requirements of Lloyds and Japanese Government Regulations.

6. *Double Bottom.* Constructed on the cellular system for water-ballast, extending from aft engine room bulkhead forward to the fore-peak tank, and holding about 300 tons of water-ballast. The double bottom space is divided transversely into four separate tanks. The tank in engine and boiler space has a central longitudinal watertight bulkhead, and divided into four separate tanks arranged and fitted for carrying both water-ballast and fresh water for feeding the boilers. Pumping well in machinery space, being formed on each side of the middle line, between centre and margine plate; fitted with efficient and approved non-return valves on tank sides, to prevent possibility of water finding its way into the hold through well in the event of accident to the outer bottom. All necessary pipes and valves so arranged that water can be drawn from or filled into each double bottom compartment separately.

7. *Deep Ballast Tanks and Peak Tanks.* Two deep tanks; the one placed before the coal bunker, and the other situated abaft the engine space and around the shaft tunnels where there is no inner bottom plating. The forward tank has a central watertight bulkhead, and is fitted complete with all pipes and valves for pumping and filling water-ballast. It carries 353 tons of salt water ballast. The after deep tank has watertight flat extending from side to side of the ship, at the level of tunnel crown, and divided into two separate compartments by a transverse watertight partition and arranged to carry 230 tons of water ballast in two tanks. It is fitted with all the necessary pipes and valves for filling and discharging.

PENANG HARBOR IMPROVEMENTS

An expenditure of £119,000 has been recommended by Messrs. Coode, Son and Matthews of London in their report on the proposed harbor improvements at Penang which was recently submitted to the legislative council of the settlement for action. If these plans are adopted, when completed, Penang harbor will be made one of the most desirable in the Far East. Messrs. Coode, Son and Matthews' report follows:—

London, 25th Sept., 1906.

Gentlemen.—With further reference to your letter of 1st February, 1904, wherein you instructed us to make the necessary arrangements for the engagement of Mr. Warren, to proceed to Penang, in order to prepare a survey and procure such local data as we required to enable us to report on a proposed Reclamation project and other works at Sungei Pinang, and on the mud banks to the northward thereof; for the reasons given in subsequent correspondence, Mr. Warren was unable to leave for the Colony until the end of April following.

2. The nature of the Report we were required to prepare, is set out in paragraph (*c*) in a letter addressed to us by the Acting Colonial Secretary on 16th December, 1901, as follows:—"The best means of reclaiming the mud flat between Church Street Ghaut and Sungei Pinang, so that it may be utilized for berthage and godowns."

3. Mr. Warren was engaged on the survey above referred to until 18th March, 1905, when he was transferred to Singapore to procure certain data and information in connection with the Tanjong Pagar Arbitration, and the proposed Lagoon Wet Dock and Wharf Reconstruction Works, also at Tanjong Pagar.

4. Mr. Matthews arrived at Singapore at the end of September, 1905, and was engaged there on the business of the Arbitration and the proposed Harbor Improvement Works and Singapore and at Tanjong Pagar, until the end of November following, when, accompanied by the Colonial Engineer, the Honorable A. Murray, and Mr. Warren, he visited Penang, *en route* to Colombo.

5. Since Mr. Matthews' return home, we have been much occupied in connection with Tanjong Pagar, Singapore and other Colonial Works, so that we regret we have not been able, until recently, to again take up this matter, although the quantity drawings and estimates have for some time been in readiness. We trust that no inconvenience will have been experienced from this unavoidable delay.

6. We have referred in paragraph 2 to the question remitted to us for Report with reference to the Sungei Pinang Reclamation and the works associated therewith. Before Mr. Matthews left Singapore for Penang he was requested verbally by His Excellency Sir John Anderson to enquire, whilst at the latter, into the desirability of extending the Iron Pier (since named the Swettenham Pier) and as to any other works it might appear desirable to put forward for consideration.

7. The numerous plans and documents prepared and collected by Mr. Warren as the outcome of his survey in 1904 1905 with regard to the Sungei Pinang project are ready for consideration, but inasmuch as the further study of the questions involved and the preparation of the Report thereon will still occupy a considerable time, we have thought it desirable to submit this Report, without further delay, especially as it deals with the works which we were given to understand during our inspection, are deemed locally to be of more immediate and pressing importance.

8. We have attached hereto a plan in illustration of the following remarks and recommendations. It shows the western front of the Harbor from near Fort Cornwallis to just southward of the Federated Malay States Railway Pier. The borings indicated on this sheet and the results thereof which are given, show the character of the bed of the Harbor at and in the vicinity of Swettenham Pier and of Weld Quay respectively.

9. The Swettenham Pier, as completed, has an external berthage length of 600 feet, being ample for the accommodation of one of the largest liners which frequent the Port, or for two ordinary steamers. The depth alongside is sufficient for the largest vessels *at low water of spring tides*. Berthage is also provided for a smaller steamer at the inner face of the southern portion of the Pier, which is of much value for transhipping purposes during the season of the tobacco trade.

10. The berthage portion of the work is 50 feet in width. It is approached from the shore by a Viaduct, also 50 feet wide, the junction between the two being fanned out to prevent congestion of traffic.

11. When at Penang, we carefully inspected the New Pier at the time of low water and found its condition generally to be extremely satisfactory. The portions of the ironwork from low water to about half tide level, were thickly coated with barnacles, small oysters, and other shell fish and marine growths, forming a species of matting, and thus affording effective protection to the face of the iron. Similar growths appeared to extend below low water as far could be observed.

12. In this connection we may state that the removal of oysters from the face of the structure should be prohibited, otherwise pitting of the iron will occur where such removals have been effected.

13. The design of the work, provided for the vital portion of the piles, *viz.*, just above and beneath low water level, to be encased with iron plating, filled in between the backs of the latter and the faces of the piles with cement concrete, in order to prevent pitting and corrosion. This provision appears to have answered quite satisfactorily, and promises to afford efficient protection in the sense contemplated.

14. The crowded condition of Weld Quay was very noticeable, as also of the Harbor front immediately seaward of it. The traffic here was greatly congested in consequence of the numerous junks, sampans, tongkangs, and other craft, lying between Swettenham Pier and the Railway Jetty, and also, but in a less degree, along the frontage to the southwest of this last named point.

15. It is evident, in consequence of the continued and regular accretion of mud, along the south-west margin of the Harbor, that floating traffic is being largely concentrated, over the length of frontage at and in the vicinity of the Railway Jetty, and between it and the new Iron Pier.

16. The Church Street Ghaut Wharf, a T shaped structure, was in an extremely dilapidated condition. It was completed in January, 1898, and, in less than seven years therefrom, some of the piles were completely cut off by the action of the teredo worm, the deck in places having sagged and being devoid of support.

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8. *Hatchways, Cargo and Coaling Ports.* Three hatchways fitted and arranged with winches, derricks, etc., for working cargo, and six coaling ports, two of which are specially fitted for the purpose.

9. *Coal Bunkers.* Capacity is 138 tons. (Spare coal is taken in holds.)

10. *Drying Room.* Built of Steel in front of machinery casing.

11. *Deck Houses and Hood.* On upper deck steel houses are arranged for Library and Reading Room, and Galley and Scullery, Library is tastefully panelled and separated from Galley by Bulkhead insulated with silicate of cotton.

A steel Hood is on after end of poop over the steering gear and entrance to Lazarette; and steel companion way with side seats forming skid-light provided to students' quarters and a small steel companion to crew's accommodation on the lower deck.

12. *Fresh Water Tank.* Iron water tank holding 20,000 gallons in all, built into ship in 3 compartments around tunnels.

The fore and after peaks are also arranged for carrying either salt water ballast or fresh water, and are fitted with pumps and valves for filling and discharging.

Masts and Spars. The fore, main and mizen lower and topmasts, bowsprit, lower yards, lower and upper topsail yards, and jigger lower mast made of steel, topgallant and royal masts and yards, spanker boom and gaff are of best Oregon pine.

Pigging is of best flexible steel fire rope. Standing rigging set up by wire lanyards on the fore and main masts and by screws on the mizen and jigger.

Sails. Two complete suits.

Boats, 1, 28' Steam cutter; 4, 26' Lifeboats; 1, 25' Gig; 2, 23' Japanese sampans.

Anchors. 2, 40 cwt Bowers. (Trotmans); 2, 34 cwt Bowers (Trotmans); 1, 12 cwt Stream (Trotmans); 3, 7 cwt., 5 cwt., 3 cwt Kedges, weights ex stocks.

Cables. 270 fathoms, 2 1-16" Chain cables; 100 fathoms, 4 ½ " Steel wire hawser.

Engines. Direct-acting, inverted, triple expansion. Two sets working cranks set at angles of 120 degrees, each set working a three-bladed Propeller of Manganese bronze. The twin propellers working inwardly and set sufficiently apart from each other as to dispense with the screw aperture in front of the rudder. A friction clutch is fitted at the after end of tunnel shafting, for disconnecting propellers when ship is under sail.

Ballast Pump. Worthington's type capable of discharging 250 tons per hour.

Dynamo and Electric Light Machinery. Two in number, fitted abaft engines. One of sufficient power for ventilating fans of baggage rooms, store, cabins double bottoms, etc., and for lighting of tunnels, water gauges, and portable lamps in stores, etc., in day time. About 5000 output in Kilowatts. Another for use at night, with necessary connections to cabins, navigating lamps, and other parts of the vessel illuminated. About 15000 Kilowatts. Machinery of Bellis's closed type.

Refrigeration Machinery. J. E. Hall's patent carbonic anhydride, for storage of fresh provisions, of sufficient power to maintain a cold chamber of 2000 cubic ft. at a uniform temperature of 30 degrees Far.

Motors. Two, each of 3 B. H. P., to work ventilation fans. Also a small motor to work workshop machinery.

Main Boilers. Two single ended return tube cylindrical type, 12 ft. diam. by 10 ft. 3 in. long. Two furnaces in each boiler. Working pressure 1801 lbs.

Auxiliary Boiler. Cochran's vertical, fitted with all necessary connections to electric light and refrigerating machinery, auxiliary engines, steering engines and deck machinery, etc. Working pressure 120 lbs.

Deck Winches. Three Clark and Chapman's, connected with main and auxiliary boilers.

Windlass and Capstans. Napier Bros. patent steam windlass, geared to a capstan on forecastle deck. Also six double power hand capstans, for warping, etc.

Steam Steering Gear. Cardwell's vertical, supplied by Bow McLachlan.

Hand Steering Gear. Screw gear aft supplied by Bow McLachlan. Also hand gear fitted in front of screw gear and connected with quadrant.

Telegraphs. Engines, steering, and docking telegraphs by Chadburn & Sons.

Accommodation. Main saloon, captain's and principal officer's cabins fitted in polished white oak, other officer's and engineer's cabins similar to those in the first class of an ocean steamer. Cadets dining saloon and cabins similar to second class.

17. We understand this Wharf has now been repaired. When the time arrives for future renewals we would recommend that the existing structure should be superseded by a light iron screw pile jetty, suitable for tongkang traffic, the outer leg of the T being say 500 feet in length and 45 feet in width, placed say, 60 feet seaward of the present outer arm and kanted somewhat in the direction of the Pontoon Landing of the Railway Jetty, so as to give a greater depth alongside at low water. Berthage would be available on both sides of this Arm, and a broad connection with the shore should be provided for the convenient carrying on of the increased traffic that might be expected to follow from the erection of such a work.

18. At the time of the inspection to which we have referred, the Hon'ble J. K. Birch was good enough to arrange for interviews with two representative members of the Legislative Council, the Hon'ble A. Huttenbach and the Hon'ble J. Bromhead-Matthews, and also with members of some of the leading mercantile and shipping firms in Penang. Valuable information was likewise furnished by Captain Macintyre, the Harbor Master, who also accompanied Mr. Matthews when inspecting the Pier and the approaches to the Harbor.

19. A list of gentlemen who attended at the Government Offices, and so kindly gave us the benefit of their experience with regard to the requirements of the Port and the working of its traffic, is given in an appendix attached hereto. To each of these gentlemen we desire to express our thanks for the valuable opinions which were so readily and courteously expressed.

20. With only one or two exceptions, all the gentlemen, who were consulted with regard to the nature and extent of the Harbor Improvements which are most necessary to meet the wants of the Port, were of opinion that the new Iron Pier should be extended, the additional length required being generally considered as 600 feet, thus increasing the berthing face from 600 feet, as at present, to 1,200 feet, and thereby providing accommodation, simultaneously, for two of the largest liners which frequent the Port, or for three ordinary steamers, and also for two small vessels alongside the inner face.

21. It was pointed out in favor of the extension of the Iron Pier that, by the provision of a greater length of berthage thereat, steamers would be assured of accommodation on their arrival, and that in the absence of such assurance, it is preferred that vessels should lie out in the Harbor rather than to come alongside.

22. We gathered from Captain Owen, the Pilot who is in charge of the North German Lloyd steamers on entering and leaving the Port, that he had not experienced any difficulties in bringing vessels alongside or in leaving the Pier either outward or homeward. He pointed out that he had brought vessels to the Pier during moonlight nights, but considered that on dark nights coming alongside might be attended with some risk, due not to the position of the Pier itself, but to the presence of shipping in the Harbor in its vicinity.

23. Reference was made by several gentlemen to the important benefits which would result from the widening of Weld Quay, southward of the Reclamation at that time drawing nearer completion, and extending on to and including the widened inner end of the Federated Malay States Railway Pier, thereby increasing the width of the Quay, over the length described, to the extent of from 70 feet to 90 feet.

24. Mr. Huttenbach was of opinion that a comprehensive scheme for Harbor improvements at Penang was urgently required, and that the extension of the Pier would not be sufficient or adequate in this report. Mr. Huttenbach was understood to favor a project of somewhat similar character to that originated by Sir John Coode, and described in his Report dated 31st March, 1891. This work consisted of an Island Pier, 1,250 feet in length, and 210 feet in the width, with a Viaduct approach extending from the eastern end of Church Street Ghaut, the length of the Viaduct being 1,080 feet. The work was designed with a view to non-interference with the tidal circulation in its vicinity, and thus to provide for the maintenance of the berthage depth alongside, which was considered to be sufficient for ocean going steamers. The estimated cost of Sir John Coode's project was £333,000. It is not improbable, however, that a considerable additional expenditure would now have to be incurred, in consequence of increased prices in the interval. When considering the Sungei Pinang project, to which reference has been made in paragraphs 2 and 7 in the foregoing, and in preparing the Report thereon, we propose again to refer to the views expressed by Mr. Huttenbach as above.

RECOMMENDATIONS

25. After carefully considering the requirements of the Port, and the manner in which, for a given expenditure, the maximum amount of additional accommodation can best be afforded, we arrived at the conclusion in the Colony, which has been confirmed by subsequent study since our arrival home, that the Swettenham Pier should be extended as suggested by the Authorities in the Colony who were consulted with regard thereto. It is also in our opinion most desirable in view of the extremely congested condition of Weld Quay, more particularly between the Southern end of the Reclamation recently completed and the Federated Malay States Railway Pier, that it should be widened, also as suggested locally.

26. Having regard to the foregoing, we have now to put forward the following proposals for adoption.

27. Inasmuch as it will not be practicable to extend the Pier for the whole length considered necessary, *viz.*—600 feet, in a northerly direction, in consequence of interference by tidal currents with berthage alongside, due to so great a prolongation at that end, and also to some extent from sea exposure, we are of opinion that the maximum length of extension to the northward should not exceed 345 feet and that the balance of the 600 feet of additional length, which appears to be necessary, should therefore be made southward of the southern end of the Pier, thus increasing the berthing accommodation, on the outer face, from 600 feet to 1,200 feet.

28. When putting forward the design for the Pier in its present shape in 1901, we pointed out that we did not at that time consider it desirable further to prolong the work in a southerly direction, in view of the unfavorable character of the Harbor bed at that end, and also with reference to the possibility of interference with the approach of tongkangs, etc., to the godowns between the landward portion of the Pier and the Pontoon Jetty.

29. Experience has shown that no settlement has occurred at the Southern end, or any other portion, of the Pier, nor has there been interference with the navigation of craft to and from the wharf face and godowns thereon.

30. We are of opinion for the reasons above given, that a further prolongation to the extent of 255 feet at the southern end may be undertaken, without detriment to the working of the traffic nor is there a probability of settlement occurring in the new portion of the Pier, more especially as we contemplate, in connection with the southern extension, to increase the diameter of the pile screws, with a view to provide a greater bearing area along that length.

31. In our opinion berthage of not less than 1,200 feet is required for the accommodation of two large steamers simultaneously, and seeing that a length of 345 feet, or twenty-three bays of piles of 15 feet each, is all that can be provided at the northern end, the balance of 255 feet or 17 bays of piles of 15 feet each, should be provided to the southward. Both these extensions are shown by red color on the annexed plan.

32. At each end of the proposed additions to the Pier, and on the western, or inner face thereof, we have shown a Pontoon landing, of somewhat similar construction to those at Johnston's Pier, Singapore. These landings will be of much use for the accommodation of launches and boats to and from vessels in the Harbor. We mentioned the provision of these Pontoons to Captain Macintyre, and also to the gentlemen with whom we conferred when at Penang, and understood from them that such accommodation would be much appreciated, and would be of considerable value.

33. We gathered from Mr. Sielcken, who gave us valuable information, that by berthing steamers alongside the new Pier instead of lying out in the Harbor, there would be a more perfect check on the cargo landed; also that shortages of valuable cargo, and thefts, which are now so frequent, would, to a large extent, be obviated; moreover cargoes would be landed in better condition in consequence of being handled less.

34. Mr. Sielcken also pointed out that Penang would attract a large amount of transhipment cargo, as the natural port for Atjeh, Deli, the Federated Malay States, and Western Siam, which cargo is now sent to Sabang, Batavia, and elsewhere, in consequence of goods suffering from the present method of transhipment at Penang.

35. With a view to prevent congestion of traffic on the existing approach to the Pier, which in the absence of an additional shore connection might be looked for, we propose to provide a further approach Viaduct in the position shown by red color on the plan. The traffic due to that portion of the Pier southward of the existing approach would be conducted over the latter, whilst the traffic northward of that point would pass over the new Viaduct.

36. When in the Colony in November of last year, we arranged with the Colonial Engineer and his Deputy, Mr. Pigott, for the widening of the existing wharf wall in the position which was then defined, so as to form an abutment at the inner end of this additional approach to the extended Pier.

37. We presume that provision has been made accordingly, and therefore we have not included in the estimated cost of the works to be given hereafter, any sum consequent upon the work required in connection with this abutment.

38. As the Pier is being extended, the present buoys at the North and South ends and their attachments will require to be removed and fixed in new positions as may be deemed most suitable by the Harbor Authorities. Similarly, the lights at each end of the existing Pier would be refixed in corresponding positions with regard to the North and South ends of the extensions.

39. It is satisfactory to be able to report that the depth alongside the berthage length of the Pier has been fairly well maintained, and although vast quantities of silt held in suspension in the water enter the Harbor, we do not anticipate that shoaling will occur in front of the Pier to such an extent as could not be readily removed by means of the Priestman Dredging crane which is available in the Port. Moreover, as we have previously pointed out, the frequent use of the Pier by steamers, and the disturbance consequent on the working of their propellers, will tend to the maintenance of the depth alongside.

40. We should point out that until the completion of the Reclamation North of the Pier, and the erection of the godowns thereon, full advantage cannot be taken of the accommodation which will be afforded by the Pier, when means are available for the ready storage of cargo prior to shipment and after being landed. This Reclamation and the godowns are being carried out by the Public Works Department and consequently do not form any part of the undertaking which has come under our immediate supervision as to construction.

41. About two and a half years from the receipt of the material in the Colony would be required for the carrying out of the two

extensions of the Pier, as shown by red color on the annexed plan, so as to render its finished external berthage length 1,200 feet instead of 600 feet as at present, or say three years from the receipt of the order to proceed, an interval of six months being required for the preparation and delivery of the materials, and the preliminary arrangements necessary in connection therewith.

42. It is proposed that the extensions should proceed from the north and south ends simultaneously, with a view to expedite completion, so that an additional erecting machine will be required, for which a sum has been included in our estimate.

43. With a view to improving the access to the Pier, and in order to afford sufficient space in front of the Government Offices and from thence leading on to the new godowns, and to the two approach Viaducts connecting the wharves and the Pier proper, we propose to widen the roadway from the Clock Tower towards the Harbor front as shown on the plan, the cost of which improvements is included in our estimate, but not any sum for purchase of land, which we assume will not be necessary, as the property in question, we are given to understand, belongs to the Government.

44. We have shown on the annexed plan by red color, a proposed widening of Weld Quay, southward of the reclamation recently completed extending to the inner portion of Church Street Ghaut Wharf, and from thence to the Federated Malay States Railway Pier, so as to include the root of the approach to the latter. The total length of this work would be 860 feet, and it would consist of a Quay Wall, similar in construction to the wall recently completed, the space between the back of the same and the existing quay being filled in to form a reclamation.

45. It is assumed that it will be necessary to widen the inner end of the Viaduct leading to the Railway Pier, as shown, so as to form a root to that work, of corresponding area to that of the present structure. The extent of this widening is also shown by red color on the plan.

46. The additional width of new wharf varying from 70 feet to 90 feet in extent, which would result from the proposed improvement at Weld Quay, cannot fail to be of material advantage in mitigating the confusion of traffic, and the extremely congested conditions under which business is carried on along the length of the Harbor front referred to. We would suggest that the proposed wall and reclamation should be carried out by the Public Works Department, as in the case of similar work to the northward.

47. We estimate the cost of the works recommended for construction, as follows:—

Northern Extension to Swettenham Pier, 345 feet in length and 50 feet in width, including an additional Viaduct approach from the new Quay face in front of the godowns in course of erection, out to the west side of the extension, and also a Pontoon Landing as described	£57,500-0-0
Southern Extension to Swettenham Pier, 225 feet in length and 50 feet in width, with Pontoon Landing	£39,000-0 0
Widening Weld Quay for a length of 860 feet, as shown on plan	£19,000-0-0
Widening inner end of Federated Malay States Railway Pier, as shown on plan and other work in connection therewith. Also forming widened Road in front of Government Offices	£3,200 0-0
	£118,700-0-0

SAY £199,000 0-0.

48. The sums we have named as the probable cost of the two extensions of Swettenham Pier, are based on the actual expenditure on the existing work and include allowances to cover contingencies, engineering, and supervision.

49.—As named in previous Reports, the Harbor bed on which the Pier extensions would be constructed is of an exceptionally unfavorable character, entailing the use of specially long iron piles, and massive struts and braces. Moreover, the great weight of the steamers to be berthed alongside an open Pier of this character, erected on so unfavorable a foundation, necessitates special arrangements. We do not therefore consider that for a less expenditure, a suitable structure can be provided which will fulfil the required conditions in a satisfactory manner.

50. In conclusion we have to thank especially the Hon'ble J. K. Birch and the Hon'ble A. Murray, for the kind and courteous assistance which they rendered during our local investigations. Our best thanks are likewise due to Captain Macintyre, the Harbor Master, for his ready and active help and also to Mr. Pigott, who furnished us with such local particulars with regard to the quay walls, etc., as we required, and who likewise accompanied us during our inspections at Sungei Pinang. We have also to thank our Assistant Engineer, Mr. P. R. Warren, for the admirable manner in which he prepared the data we required.

We have, etc.,

Coode, Son & Matthews.

BRIDGING THE YALU RIVER

The talk is renewed, says *Japan Mail*, of building a bridge over the Yalu from Sin-Wiju (new Wiju) to Yongampho. New Wiju is 10 miles down stream from the original Wiju and lies near Antung. The road-bed would be 40′ over the water and the length of the bridge would be 3,329′. There is necessity to build on each side embankments some 300′ long but the engineering difficulties are not thought serious. Tokyo newspapers assess the cost at -Y-2,000,000. It should be added that the bridge will be chiefly for railway uses, but there will also be a road for general traffic. We should have thought that an easier task would have been to bridge the river higher up, where its stream is broken by several islands, but of course this matter has received full consideration from experts. The road for ordinary traffic will be so arranged that it can be converted at any moment into the bed of an additional railway track. Junks will be able to pass under the bridge by merely lowering one section of their main-mast. It is expected that the bridge will be ready for use in 1909, which is about the time when the conversion of the Wiju Mukden line will be completed. Travellers will then be able to reach Mukden from Fusan without alighting from the train. We dare say that this railway inspires occasional uneasiness to the folks who are oppressed by the nightmare of a renewed conflict between Japan and Russia. The East-China Railway is useless to each Power alike for purposes of military transport. Neither could employ it in that way without such a violation of the Portsmouth Treaty as would amount to an act of war. But by means of the Fusan-Mukden line Japan will be at times able to carry troops into Northern Manchuria. It is true that she is pledged not to increase her forces in that region beyond a certain point, and it is also true that, did she so increase them, Russia would have legitimate ground for complaint. But that scarcely diminishes the value of such an important auxiliary line of communications as the Fusan-Mukden railway will furnish. There is no reason whatever to suspect Japan of ambitious designs in Northern Manchuria. If there is ever to be a war of revenge, the incentive will not come from Japan's side. But the best way to avert such a catastrophe is to be amply provided against it.

OBITUARY

Mr. John Stephen, manager of the Singapore Slipway and Engineering Company, and one of the leading business men of Singapore, passed away at his residence, Tanjong Rhu, May 9th, from an apoplectic stroke. The funeral took place at Bukit Timah cemetery, Singapore.

Mr. Fred. Wilson, senior member of the firm of Messrs. Fred Wilson & Co. of Manila, passed out at Hampstead, London, England, May 24. Mr. Wilson was one of the oldest foreign residents of the Philippines having a residence in the islands of over 30 years. The stricken ones have the sincere sympathy of many friends in the Philippine capital.

PACIFIC MAIL HAS POOR YEAR

The preliminary report of the Pacific Mail Steamship Company for the fiscal year ended April 30 shows a decrease of $885,092 in gross earnings, $600,807 in net earnings and $152,481 in final surplus. This unsatisfactory report was generally expected. President E. H. Harriman says in part:

"The report says that the greater part of the decrease in operations of steamers was the result of a diversion of traffic to other channels during the re-establishment in San Francisco of stores, warehouses, hotel accommodations and other accessories for carrying on an extensive commerce, which were destroyed by the fire of April, 1906. Other influences were the lower rates of ocean tonnage which prevailed during the entire year, and loss of traffic with Central America, owing to the unsettled civil condition in those States. In addition to the interruption of the regular service of the steamers by strikes and the expenses incident thereto, the cost of operating steamers was materially increased by an advance in wages, ranging from 15 to 33 per cent in all departments of the ships and by the greater cost of all materials and supplies used by them, particularly coal."

The income account for the year shows the following:

	1907	1906	Decrease.
Gr. from oper. steam.	$4,659,046	$5,512,917	$853,871
Rnts. and agcys......	184,757	168,363	33,606
Subsdes, inv'mts, etc.	45,442	43,057	*2,385
Total	$4,879,245	$5,724,337	$885,092
Steamer expenses including charters....	3,496,125	4,102,207	606,082
Agency expenses.....	568,973	508,414	*60,559
Insurance............	125,867	128,252	2,385
Gen. & Miscel. exps.	103,584	156,483	52,899
Total	$4,294,549	$4,895,356	$600,807
Surplus	$544,696	$829,981	$284,285
Exps. SS. disast'rs....	16,412	....	*.6,412
San Fran. fire loss...	....	148,547	148,547
Dep'n., reprs., etc....	397,880	397,519	*381
Total ded'ns......	$414,292	$546,096	$131,804
Final surplus.....	$130,404	$282,885	$152,481

* Increase.

The fund for depreciation at the close of the year had a credit of $1,725,934. The indebtedness to the Southern Pacific Company, incurred partly in paying for the steamships Korea and Siberia, costing $3,974,764, was discharged during the year, and the company has no other debts than those for current expenses, which amount to $269,565. Against this indebtedness the company had on hand in New York, San Francisco and London on April 30 last cash amounting to $343,328 and other current cash assets amounting to $319,510.

Henry W. De Forest and Robert Goelet have been elected directors. They take the place of James Speyer and George J. Gould, who resigned from the board some time ago. The other directors were re-elected.

NEW AUSTRALIAN LOAN

It is stated that arrangements have practically been concluded between the Commonwealth Government and the South Australian Ministry, subject to the consent of the respective parliaments, by which South Australia will raise in the London market a loan guaranteed and ultimately to be taken over by the Commonwealth for the purpose of constructing a railway across Australia from north to south, which, in turn, will be connected with Western Australia on the west, and Queensland and Victoria on the east. The total cost is estimated at $50,000,000.

It is said that one of the immediate effects on London will be that Australian mails will probably go by way of Port Arthur to Port Darwin in North Australia, saving about ten days between London and Adelaide

LESSONS IN ESPERANTO

(The growing interest in the study of Esperanto in all parts of the world indicates that it has come to stay. At the earnest request of a large number of Esperantists throughout the Far East the FAR EASTERN REVIEW will publish, beginning with this edition, a series of lessons in this modern international language which, when completed, will give the student a comprehensive and practical knowledge of the idiom of this new means of intercourse.) For more elaborated definition we recommend the student *Grammar and Commentary of the International Language Esperanto* by General George Cox, BA, price 2s. 6d. post free 2s. 9d. (British Esperanto Association, 13 Arundel St., Strand.)

LESSON I

THE ALPHABET

a b c ĉ d e f ĝ g ĥ i j ĵ k l m n
o p r s ŝ t u ŭ v z

All the letters are pronounced as in the English language, with the exception of the following:

	as	in		as	in		as	in
a	*'a'*	*father*	**ĝ**	*'g'*	*gtin*	**o**	*'oa'*	*boat*
c	*'ts'*	*Tsar*	**ĥ**	*'ch'*	*loch*	**s**	*'s'*	*see*
ĉ	*'ch'*	*church*	**i**	*'ee'*	*seen*	**ŝ**	*'sh'*	*shall*
e	*'a'*	*care*	**j**	*'y'*	*yes*	**u**	*'u'*	*rule*
g	*'g'*	*good*	**ĵ**	*'s'*	*pleasure*	**aŭ**	*'ow'*	*cow*

Every word is to be read as it is written. The accent always falls on the last syllable but one:—"vojo," "kantado," "interparolo."

The letters **ŭ** (corresponding to the English **w**) and **j** are consonants; **aŭ, eŭ, aj, ej, oj** and **uj** are therefore monosyllables. One has to pronounce therefore ankaŭ and *not* ankaŭ, bonaj and *not* bonaj, ĉiuj and *not* ĉiuj, &c.

GRAMMATICAL TERMINATIONS AND CHARACTERISTICS.

o. a. e.

By adding one of these letters to the root word, substantives, adjectives and adverbs are formed.

There is no indefinite and only one definite article **la** for all genders, numbers and cases.

Substantives are formed with **o**, adjectives, with **a**, and adverbs with **e**.

La patr'o, *the father*, **patr'a,** *paternal*, **milit'o,** *war*. **milit'a,** *military*. **la feliĉ'o,** *the hap. piness*, **feliĉ'a,** *happy*, **feliĉ'e,** *happily*, **bon'a** *good*, **bon'e,** *well*.

Compound words are formed by simple junction of the roots (the defining or qualifying word always standing first), and are written as a single word.

For the sake of euphony the grammatical endings of the defining word, **o, a,** and **e** may be inserted.

La vapor'ŝip'o, *the steamship*. **la ter'pom'o,** *the potato*. **akv'o'fal'o,** *waterfall*. **nokt'o'mez'o,** *midnight*. **ĝust'a'temp'e,** *at the right time*. **sen'pag'e,** *gratuitously*.

The so-called foreign words, which the greater number of languages have taken from the same source and which therefore are already internationally understood and used,, undergo no change in Esperanto, beyond conforming to its system of orthography.

Ortografi'o. *orthography*. **ortografi'a** *orthographic*. **teatr'o,** *theatre*. **teatr'a** (not teatrical'a), *theatrical*.

j. n.

The plural is formed by adding the letter **j** to the termination of the noun (**o**) or adjective (**a**). Adjectives agree with their nouns as regards number and case.

La patro'j. *the fathers*. **bona'j domo'j,** *good houses*.

There are only two cases in Esperanto, the non-inflecetd one or the nominative and the inflected one or the accusative, which is formed by adding the letter n to the nominative, singular or plural.

La filo amas sia'n patro'n, *the son loves his father*. **mi vidas arboj'n,** *I see trees*.

Every preposition in the international language (except **je**) has a definite fixed meaning. All prepositions govern the nominative case. The possessive is formed by the preposition **de.**

De la patro, *of the father, the father's*. **al la patro,** *to the father*. **kun la patro,** *with the father*, **por la patroj,** *for the fathers*.

If it be necessary to employ some preposition and it is not quite evident from the sense, which it should be, the preposition **je** is used, which has no definite meaning. If ambiguity is not to be feared, we may use instead of **je** the accusàtive without a preposition.

Ridi je la kantado, *to laugh at the singing*. **sopiro je la patrujo,** *longing for one's fatherland*. **je la tria tago** or **la trian tagon,** *on the third day*.

In phrases answering the question *where?* (meaning direction) the word indicating the direction takes the accusative termination **n.**

Kie? *where?* **kie'n vi iras?** *where are you going?* **hejm'e,** *at home*. **hejme'n,** *home*. **Iri Parizo'n,** *to go to Paris*. **la birdo flugis en la ĉambro'n,** *the bird flew into the room*. **ĝi flugas en la ĉambro,** *it flies in the room* (*it is in the room and flies there*).

The comparative degree is formed by **pli,** *more*, and the superlative by **plej,** *most*. The word *than* is rendered by **of.** **Pli blanka ol neĝo,** *whiter than snow*. **la plej alta monto,** *the highest mountain*.

The personal pronouns are:

Mi *I, me*, **ci** *thou, thee*, **li** *he, him*, **ŝi** *she, her*, **ĝi** *it*, **ni** *we, us*, **vi** *you* (sing. & plural), **ili** *they, them*, **si** *himself, herself, itself, themselves, oneself* (reflex), **oni** *one, people, they* (the French "on").

The personal pronouns in the objective case also take the accusatival **n**, and by adding the adjectival **a**, they are turned into possessive pronouns, obeying the rules for adjectives.

Mia *my, mine*. **via** *your, yours*. **ŝia** *her, hers*. **ĝia** *its*. **min** *me* (obj.) **iliajn patrojn,** *their fathers* (obj.) **liaj libroj,** *his books*.

as. is. os. us. u. i.
ant. int. ont. at. it. ot.

By means of these 12 grammatical terminations and characteristics and the auxiliary verb **esti** we are able to render all voices, moods and tenses of the conjugation.

The verb never changes its form as regards number and person.

The first three terminations, **as, i, os** serve to indicate the three fundamental tenses:

Present—**mi skrib'as,** *I write*
Past—**mi skrib'is,** *I wrote*
Future—**mi skrib'os,** *I shall write*

The next three, **us, u, i** help to form the conditional, imperative and infinite moods:

Conditional—**mi skribu's,** *I should write*
Imperative— **skrib'u,** *write*
Infinitive—**skrib'i,** *to write*

By adding the personal pronoun to the imperative one expresses wish, intention or will:

(ke) li skrib'u, *let him write, that he may write*, **ni skrib'u,** *let us write*

The characteristics **ant, int, ont,** form the active participles:

Present—**skrib'ant'a,** *writing*
Past—**skrib'in'ta,** *having written*
Future—**skrib'ont'a,** *about to write*

By adding the grammatical terminations **o, a** they become substantives and adjectives, and by adding **e** they obtain an adverbial character:

La leganto, *the reader*. **la pasinta nokto,** *the past night*. **instruante ni lernas,** *in teaching we learn*.

The passive participles are formed by the characteristics, **at, it, ot:**

Present—**am'at'a,** *being loved*
Past—**am'it'a,** *having been loved*
Future—**am'ot'a,** *about to be loved*

These also can be turned into substantives, adjectives and adverbs:

La amato, amatino, *the sweetheart*. **kuiritaj terpomoj,** *boiled potatoes*. **li revenis el la batalo vundite,** *having been wounded, he returned from the battle*.

By the help of the auxiliary **esti** the compound tenses are formed.

vi estas petata, *you are requested* (singular) (literally: you—are—being requested).
ni estos skribintaj, *we shall have written* (literally: we—shall be—having written).
ŝi estus laboranta, *she would be working*
li eslis dormonta, *he was about to sleep*
mi estas amita, *I have been loved* (literally: I—am—having been loved).
estu benata, *be blessed*

PREFIXES.

bo- denotes *relation by marriage;* **patro,** father. **bopatro,** father-in-law. **frato,** brother. **bofrato,** brother-in-law.

dis- denotes *separation* (as in English): **ĵeti,** to throw. **disĵeti,** to throw about. **semi,** to sow. **dissemi,** to disseminate.

ek- denotes *beginning and momentary action*. **brili,** to shine. **ekbrili,** to flash. **kanti,** to sing. **ekkanti,** to start singing.

ge- denotes *persons of both sexes, taken together;* **mastro,** master. **gemastroj,** master and mistress. **onklo,** uncle. **geonkloj,** uncle and aunt.

mal- denotes *opposite ideas*. **riĉa,** rich. **malriĉa,** poor. **fermi,** to shut. **malfermi,** to open.

re- denotes *return and repetition*. **veni,** to come **reveni,** to come back. **brili,** to shine, **rebrili,** to reflect.

(Continued.)

A NEW OIL ENGINE BY E. E. ALLEN, M. E.

There is now being built at San Nicolas Iron Works, Manila, a new oil engine of two cylinders for gasoline, kerosene or alcohol motor. These engines will be built in anything from one to six cylinders, according to their use either stationary or marine purposes. There are several features which are improvements over the old oil engines. One is the particular attention given to a positive and automatic lubricator. All moving parts will be constantly flooded with oil and it will be impossible to get a surplus of oil into the combustion end of the cylinder so that there is absolutely no danger of clogging the piston with burnt lubricating oils. This will assure much economy in fuel.

EXPORT OF SIBERIAN BUTTER

According to Consul Samuel Smith, of Moscow, the Department of Railways publishes the following data respecting the quantities of butter, in tons, shipped via the Siberian Railway into European Russia for the last five years: 1902, 31,131; 1903, 36,123; 1904, 34,803; 1905, 31,258; 1906, 46,738.

ASIATIC NOTES

A new coal mine is said to have been discovered by the Russians on the Eastern Manchurian Railway to the east of Harbin station, and steps are being taken to form a company to work it.

The formation is announced of a new Belgian company, the primary object of which is the establishment of an up-to-date automobile garage in Bangkok, Siam. The company has a capital of more than 1,000,000 ticals (current value of silver tical, 30 cents).

Owing to the establishment of a vast number of progressive schools in Canton, the demand for leather in making shoes and boots for the students is exceedingly great. The Viceroy proposes to appropriate an official fund of several hundred thousand dollars, and establish a factory for tanning hides.

Mines, Mining and Minerals in the Philippine Islands

(Edited by the Bureau of Science, Manila)

CAMARINES GOLD FIELDS

The Paracale Gold Dredging Co., Ltd., incorporated at Dunedin, New Zealand, for the purpose of dredging for gold on the Paracale river, brought from New Zealand in January of this year the machinery for a modern gold dredge. It had been used for a short time on a dredge in that country, which had proved unsuccessful, through no fault of the machinery, however. It consists mainly of a 70 horsepower boiler; a horizontal English engine of 60 horsepower; one six barrel winch; a digging ladder 62 ft. in length; a revolving screen; thirty-seven digging buckets of 4½ cu. ft. capacity each; a centrifugal circulation pump; and the many accessory pieces of machinery such as shafts, pulleys, belts, band wheels, etc., which to go to make a complete dredge. The pontoon is built of Oregon pine bought in Manila, and is 114 ft. long, 30 ft. wide 5 ft. 6 ins. deep at the bow, and 9 ft. deep at the stern. The great depth at the stern is required more particularly to support two sluice concentrators 80 ft. long, 6 ft. wide and 2 ft. 6 ins. deep, which will project fully 30 ft. back over the stern of the boat, and were designed to save the valuable black sand as well as the gold found in the gravel. They are to be lined with coco matting and expanded metal riffles. The capacity of the dredge is stated by officials of the company to be 2,000 yards per day, the speed of the buckets being 13 per minute.

The district of Paracale and Mambulao has been the scene of great activity in the mining industry in the past but it was disappointing to find almost all of the old workings inaccessible either on account of cavings or accumulated water. The work under American direction has hardly commenced except on the placer ground.

At Paracale the topography for about four miles inland consists of low hills, ridges, and flat land, all heavily wooded and covered with a dense undergrowth of vines, tree-ferns and palms well armed with spines and hooks. There are a few trails, however, and the Malaguit and Paracale rivers furnish a convenient means of transportation to a portion of the district.

Beyond the low flat land Mt. Bagacay rises abruptly to an altitude of 3,000 ft., as given by aneroid barometer, while May Cruz mountain near Mambulao is a little more than 1,000 ft. high as indicated by aneroid.

Mambulao bay is well sheltered and is navigable for large vessels. At present there are no docks or piers to facilitate the handling of cargo and it is very seldom that a steamer calls at this port.

The mineralized zone embraces a territory of at least fifty square miles, a district about five miles wide by ten miles long, beginning about 1½ miles east of Malaguit and extending a mile west of Mambulao, and from Mt. Bagacay and Lauzon creek northward to the sea. Ores occur over a much larger district but this includes the principal workings, both past and present.

GENERAL GEOLOGY.

A detailed study of the geology was not undertaken, but in a general way the mineralized district may be said to consist of hornblende diorite, schist and gneiss.

Bagacay range, which limits the district on the south, is composed of a diorite porphyry containing hornblende phenocrysts, and has a general trend of S. 85° W. There are also some intrusions of a dark colored igneous rock between Paracale and Mambulao.

The district of Dilinquente and Calabornay comprising the low area east of the Malaguit river appears to be formed of a light colored hornblende diorite, although it was impossible to obtain samples of the rock in places that were not much altered by weathering.

Dinaanan ridge consists of a light colored schist on the Malaguit side and gneiss on the Paracale or northwest side; the contact between these two metamorphic rocks strikes northeast and southwest, which is the general strike of most of the quartz veins in this district.

Between Paracale and Mambulao the great mass of the rock is gneiss although there are in this area numerous intrusions of a dark colored igneous rock, and about four miles west of Paracale there is exposed on the beach a dark hard metamorphic rock of fine texture.

Some two miles west of Paracale the trail leads over low hills which are covered with crusts and nodules of hematite and magnetite overlying or mixed with red clay formed by the weathering of an igneous rock rich in iron.

At Lauzon, creek, Tumbaga, and the headwaters of the Malaguit river, a rock having the appearance of slate is found. A careful microscopic examination of the Lauzon rock made by the the Chief of the Division of Mines proved it to be a schist. Probably the others are also metamorphic igneous rock.

It will readily be observed that this district has been the scene of extensive dynamic action since the first rocks were formed. The action which brought about the metamorphism of the older rocks to the present gneiss and schist, possibly from diorite such as still exists in part of the territory, the intrusion of dykes of igneous rock, and the elevation of the igneous mass of Mt. Bagacay produced a shattered condition of the rock masses favorable to the circulation of mineral waters and the formation of ore bearing veins.

A knowledge of the exact relation of these different movements to one another and the influence of each on the formation of the ore deposists would be of great value to engineers and miners in their efforts to develop this district. It is to be hoped that an accurate map may be made in the near future and a study of the geology in detail undertaken as soon as the old workings in the district have been opened up and new work commenced.

DINAANAN RIDGE.

There are at least five important lodes on this hill all of which strike northeast and southwest and dip vertically, or very steeply inclined to the southeast. On the old San Antonio claim, now the San Francisco, a depth of 120 ft. was attained. The main lode is approximately six feet wide and lies between schist on the Malaguit and gneiss on the Paracale side. The ore in the vein is refractory, being mostly pyrites in quartz. Its value is unknown and cannot be determined until a tunnel, which is now caved at the mouth and which formerly connected with the bottom of a shaft 120 ft. deep, has been opened.

A smaller lode, 18 in. to 2 ft. in width, which lies a few feet to the northwest of the main lode, is reported by Filipinos who formerly worked in the mine to be rich in free gold.

Chromate of lead is known to occur in the San Antonio veins but the workings are not accessible at the present time.

The old Baluarte claim, now called the California, adjoins the San Antonio on the northwest. Ore from this claim was treated in a steam arrastra situate a few hundred yards up the Paracale river and is reported to have milled 1½ ozs. per ton. The ore contains pyrites in abundance but several specimens of free gold were observed in the ore lying about the collar of an old shaft 21 ft. deep. The lode is approximately vertical, strikes northeast and southwest, and consists of 5 to 8 feet of dense tough quartz which crushes well but is not very easy to mine.

Lying on the right bank of the Paracale river this lode is advantageously located in many respects. The greatest difficulty to be expected is a considerable flow of water, as the vein does not rise more than a few feet above sea level.

A ten stamp mill on Longos Pt. and an arrastra plant on the right bank of Paracale River were erected in 1896 by the Philippines Mineral Syndicate to treat the ores from Dinaanan ridge. The arrastras also extracted the gold from the concentrates from a small dredge operated by the same company on the waters of the Paracale river. This was the first power dredge erected in the Philippines for mining purposes.

All the lodes on the Dinaanan ridge carry pyrites in large amounts and it may seem strange that the natives could obtain any considerable amount of gold from such an ore. The old miners, however, say that in nearly all of these lodes there is a small streak of ore very rich in free gold. Usually it is not more than two or three inches wide and varies in position in the vein, but it was from these rich stringers in the vein of low grade ore that much of the gold was taken. A particular form of soft fine pyrites was also known to be rich in gold and this was ground by hand between two flat stones and then washed in bateas, or fabirics, as the wooden washing pans are called by natives of the Camarines.

SAN MAURICIO GROUP.

The San Mauricio group of claims lies on the western slope of May Cruz mountain and not more than three quarters of a mile from the town of Mambulao. A large amount of development work was performed on this group and engineers have reported the ore in sight to be about 12,000 tons of an average value of ten to fifteen dollars gold per ton. Part of the value can be saved by amalgamation and most of the remainder by concentration. It is estimated that the ore would concentrate about ten tons into one and that the concentrates would assay $70.00 per ton. The heavy minerals are pyrite, chalcopyrite, sphalerite and galena.

TUMBAGA GROUP.

The Tumbaga group of six claims lies some three miles south of the town of Mambulao. Tumbaga hill apparently is composed mainly of a decomposed andesite but there is a rock having the appearance of slate associated with the Tumbaga vein. The Spanish Inspectores de Minas who had access to the workings reported the ore as occuring in a slate formation, but that it is true slate seems doubtful.

The vein is nearly vertical and strikes approximately north and south. As exhibited on the old dumps the ore is quartz and calcite containing pyrite, chalcopyrite, pyrrhotite, sphalerite and galena. Probably the ore which was formerly mined, crushed, and panned for free gold by the natives was of an entirely different character.

The mineral Tumbaga, a natural alloy of copper and zinc, samples of which have been brought to the Bureau at various times, is said to occur in a tunnel near the northern end of the Tumbaga group, as well as at three other places on Tumbaga hill. The mineral is found on one side of an auriferous quartz vein in a gangue of soft white material. There is no reason to doubt that this remarkable mineral occurs in the manner stated but it was impossible to verify the statement by actual observation since all the tunnels were caved. It is to be hoped that the end of this year will see many of these old workings opened up and new work progressing.

GENERAL.

The gold bearing ores of the Paracale-Mambulao district are all of the same general type; namely, quartz containing a large amount of heavy sulphides. The ores appear to be less refractory than would naturally be expected from the amount of sulphides they contain, and the former method of treatment was to crush, amalgamate, and concentrate the tailings and ship the product to Europe or America.

Since the machinery of the Syndicate was installed, the cyanide process of gold extraction has made rapid progress and it is probable that at least some of the ores of the district will be found to be adapted to this treatment.

It is believed, however, that many of the sulphide ores, and particularly the more complex ones, will be smelted on the ground in reverberatory furnaces, possibly after having undergone a process of concentration. With copper ore available to form a copper matte to act as a collector of gold and silver, with an abundance of wood fuel, a satisfactory amount of available water, coral limestone for fluxing, and a supply of cheap labor, there would seem to be no reason why a process of roasting and reverberatory smelting should not be a success. Neither the cost of installation nor the expense of treatment should be excessive. We can perhaps safely assume that the richest of the surface deposits have been extracted by Filipinos and Spaniards in former days, but in all probability these constituted a very small fraction of the valuable mineral wealth and there is little doubt that scientific mining with modern methods, adequate capital, and careful direction will bring large returns to those who take advantage of the opportunities here afforded

Natural conditions are in a large measure favorable to the development of the district. Transportation by steamer can be had to within a few miles of any of the properties making the installation of machinery a simple matter. Wood for fuel is abundant throughout the territory and costs ₱3.50 to ₱4.00 delivered. Labor in the immediate vicinity is neither very scarce nor extremely plentiful but any number of workmen can be brought from other parts of the Province to work for a daily wage of ₱.80 to ₱1.00. The climate is healthful and the people are peaceably inclined.

PLACER MINING.

Most of the Paracale and Malaguit rivers and the low land on both banks has been located as placer ground. The gravel beds are evidently of recent origin, lying under or near the present water courses and in no case very far above tide water. There are no high banks. Evidently this coastal region has been sinking slowly in its last geologic period.

The gravel in the Paracale and Malaguit placers is composed largely of quartz pebbles and sand, although the metamorphic and igneous rocks of the region are also represented and limestone and volcanic glass have been found in the Paracale beds.

This gravel was tested by Mr. Fearby, an engineer who was sent from New Zealand to report on the property; the Americans owning the ground having guaranteed the gravel to carry at least 25 cts. gold per cubic yard.

The gravel deposits rest upon a soft decomposed gneiss or diorite which makes an ideal bottom for the recovery of gold. They seldom exceed 30 ft. in thickness and as the dredge can work to a depth of over forty feet there should be no difficulty about cleaning up the values on the bottom. There are no large boulders and sunken logs are reported to be very few.

Mangrove swamps and low grassy ground form the low banks of the river. As it has but a small watershed the stream would not appear to be subject to disastrous floods, while there is an abundance of water for dredging purposes.

Mr. A. J. MacDonald began testing the Malaguit river with a Pierce testing machine last April, but the results of his work have not yet been announced.

The land on both banks of the Malaguit is a low mangle swamp which on first consideration would hardly be taken for dredging ground. Much of the land, however, is believed to be composed mainly of gold bearing gravel. The trees could be removed and used for fuel, and while the tangle of roots might retard the rapid operation of the dredge, it is not believed that they would prove to be an insurmountable difficulty by any means. A more serious obstacle is the presence of large boulders in some of the gravel beds along the headwaters of the river. Whether or not these boulders would prevent dredging operations will not be known until the ground has been carefully tested and the value of the gravel determined.

The rise and fall of the tide along this coast is at least 5 ft. and sometimes more. While annoying, this is not a serious obstacle to dredging.

As far back as the history of this region is recorded the natives have been washing gold from these stream beds, and they even carry material from the higher ground down to the river banks and wash it there when the tide comes in.

Concentrates from the Malaguit river examined in the office were found to contain a number of clear Zircon and Topaz crystals. All of them were small, being about 1-16 in. in diameter, but an examination on the ground would possibly result in the discovery of stones of value. Zircon and Topaz are both cut for gems but the demand for them is not great.

With proof so near at hand it is perhaps idle to speculate regarding the value of the gravel deposits. The results obtained by the dredge soon to begin operations will be eagerly awaited and if encouraging, as now seems probable, a great impetus will be given to mining in the Camarines.

There is room for a number of dredges on the placer ground along the Paracale and Malaguit rivers alone, but naturally nothing more than testing will be done until the results of the operation of the Paracale dredge are known.

H. M. ICKIS.

PERSONALS

Ben Lehr, who is largely interested in the Colorado Mining Co., returned recently from Masbate where he spent four weeks looking over different mining properties. He brought with him, on his return to Manila, a fifty-ounce gold brick which is the second shipment from the new ten stamp mill of the Gold Bug Mining Co.

J. Walter Gallagher, an old time prospector and miner, is at present in town preparing for another trip into the bosque.

The stockholders and employees of the Philippine Mining Co. are anxiously awaiting the outcome of a suit which has been brought against the company. In the meantime the claims and other property of the company are in the hands of a receiver and all operations with the dredge have ceased.

Captain Charles Nathorst has just arrived in Manila from Lepanto-Bontoc en route to the United States via Europe. He brought with him a small bar of gold, the product of the Suyoc gold mines, Lepanto.

William Kane, who is to take over the management of the Paracale Gold Dredging Co., arrived on July 11 and sailed on July 15 for the Camarines

Jerome Mayland, having completed his work on the Paracale dredge, has gone to Surigao on a prospecting trip.

OBITUARY

We regret to record the passing of another old prospector from the Philippine "bosque" and mining circles. The deceased, Mr. C. F. Bergen, was a familiar figure in Mindoro, Batangas and Cebu for a long time and death overtook him in the last named place, where he had been struggling with the tropical wilds and the dread enemy of the mining man, dysentery.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

		U. S. Currency.
ABRASIVES.—		
Bort good drill quality	csrat	$ 85.00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2.00
ACIDS.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18.00-20.00
Aluminum, 99%	lb	.36-.39
Antimony, needle	"	.12½-.13
Arsenic, white	"	.07¼-.07¾
ASBESTOS.—		
No. 1, crude	sh. ton	233.00
Fiber No. 2, paper stock	"	17.20
ASPHALTUM.—		
Trinidad	ton	30.00-40.00
California	"	20.00-35.00
Bleaching powder, 35%	100 lb	1.25-1.40
Blue Vitriol	"	7.50-7.75
Bone Ash	lb	.02¾-.04
Borax	"	.07¼-.08
*Caps detonating	M	5.00
CEMENT.—		
Portland, American	500 lbs. bbl	1.55-1 60
Foreign	"	2.25-2.90
Rosendale	300 " "	.85
*Green Island	375 lb. bbl	2.50
*Alsen		2.62½
CLAY, CHINA.—		
American common	lg. ton	9.00-12.00
Foreign	"	11.50-17.50
Copper	lb	.23-.25
*Dynamite 40%	"	.22½
Feldspar ground best	sh. ton	7.00-15.00
Fire brick American	M	30.00-40.00
Imported	"	26.00-45.00
Fire clay, St. Louis Mill	ton	2.50
*Fuse-Blasting	1,000 ft	5.00
Graphite—American ore, common	lb	.01-10
Artificial	lb	.06
Gypsum-Fertilizer	sh. ton	7.00
Powdered	sh. ton	10.00
Lead	lb	.06
Magnesite—Greece, crude, 95%	lg. ton	7.00-8 00
Bricks, domes	per M	160-200
Manganese, pure, 98-99%	lb	.75
Ore, 80-85%	sh. ton	35.00-45.00
Mercury, export flask	75 lbs	37.00-37.50
PAINTS AND COLORS.—		
Litharge American P'w'd	lb	.07¼-.07¾
Ochre, Am. Com	sh. ton	8.50-9.00
Paris Green, pure, bulk	lb	.26
Turpentine, spirits, bbl	gal	.64-.65
White lead, Am. dry	lb	.06⅝-.07
Am. in Oil	"	.07½-.07½
Zinc, white, Am. extra dry	"	.05⅜-.05½
Phosphates, Acid	per unit	.65-.67½
Florida hard rock	lg. ton	7.50
Land pebble 68%	"	4.50
Potassium Cyanide (98-99%)	lb	.18-.19
Platinum	oz	27.00-30.00
*Powder, black blasting A	lb	.15
*Judson	"	.13½
Pyrite, Domestic Non-arsenical, lump	unit	.11-.11½
Imported non-arsenical lump	"	.13-.13½
Imported, arsenical	"	.12-.12½
Saltpeter crude	100 lbs	3.75-4.00
Silica, Lump quartz	lg. ton	2.50-4.00
Ground quartz, ordinary	"	13.00-15.00
Glass sand, ordinary	"	2.75
Silver	oz	.67
Sodium cyanide (100% KCN)	lb	.18-.19
*Steel, octagon drill	lb	.14
Sulphur, Louisiana prime	lg. ton	22.12½
Roll	100 lbs	1.85-2.15
Flowers sublimed	"	2.20-2.60
Talc—Domestic	sh. ton	15.00-25.00
Italian, best	"	35.00-40.00
Tin	lb	.41¾
Zinc, metallic ch. pure	"	.15
Dust	"	.05⅞-.06¼

*Manila quotation.

PROMOTING PHILIPPINES INTERESTS

The Manila Merchants' Association has been formed for the purpose of advertising the islands in America and Europe. It is comprised of the leading business men of the Philippine capital and is receiving remarkable support. In one day over ₱35,000 were subscribed by the merchants to pay for the publicity campaign. In all over ₱60,000 have been secured. The publicity committee is busy spreading pamphlets broadcast throughout the world giving information on the prospects for investment in the islands besides refuting false and misleading statements appearing from time to time in the foreign press. This work is being gradually extended and a data gathering campaign has been inaugurated. The following is a list of the officers and committees appointed:

DIRECTORS.—President: M. A. Clarke, 2 Escolta; First Vice-President: Clemente Schwinges, La Concha Button Factory; Second Vice-President: J. A. H. Hamilton, Smith, Bell & Co.; Third Vice-President: José Garchitorena, Garchitorena Carriage Works; Fourth Vice-President: Emmanuel Ullmann, Felix Ullmann & Co.; Treasurer: Simon Erlanger, Erlanger & Galinger; Secretary: Chauncey M'Govern, The Escolta Press, 130 Escolta.

WITHOUT OFFICE.—I. Beck, American Bazaar; John Gibson, Gibson's Saw-mills; Milton Springer, American Hardware Co.; A. K. Sprungli, Sprungli & Co.; A. K. LaMotte, Calle Palacio and Real, Intramuros; William Gitt, The Bargain Store; Carl Hess, 68 Calle Bustos; E. E. Elser, McCullough & Co.; D. Earnshaw, M. Earnshaw & Co.; Walter E. Olsen, E, Olsen & Co.; Arthur C. Cohn, The Nobby; E. J. Smith, The E. J. Smith Co.; Alfredo Roensch, Roensch & Co.; Fernando Zobel, 100 Escolta.

COMMITTEES. — Legislative Committee: Messrs. Erlanger, Springer, Gibson, Garchitorena, LaMotte; Promotion Committee: Messrs. Gitt, Cohn, Olsen, Schwinges, Hamilton; Membership Committee: Messrs. Schwinges, Zobel, Hamilton, Preuser and Ullmann; Hotel Committee: Messrs. Olsen, Hess and Elser.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

PROPOSED WIRELESS TELEGRAPHY IN MONGOLIA.—The Board of Communications is contemplating the introduction of wireless telegraphy into Inner and Outer Mongolia.

YAMANOTE TRAMWAYS.—The Government Railway authorities of Japan intend to run electric trams between Shimbashi and Shinjuku on the Yamanote line at an early date.

SHI GU ELECTRIC RAILWAY.—Shingu Electric Railway in Wakayama prefecture has been sanctioned by the authorities. The lines covers 10 miles 68 chains, from Shingu to Katsu-ura.

PROPOSED TOKIO-KOBE ELECTRIC RAILWAY.—The petition for permission to construct an electric railway between Tokyo and Kobe, promoted by Mr. K. Suzuki and twenty-six other persons, was rejected under date of April 15.

SUMOTO-FUKUYAMAKA ELECTRIC RAILWAY.—Official charter was given under date of May 11 to construct an electric railway between Sumoto and Fukuyama on Amaji island, a distance of about 15 miles. The capital of the company is 2,000,000 yen.

TEIKOKU UNYU AUTOMOBILE CO.—The Teikoku Unyu Automobile Company has decided to decrease the capital of 5,0000 000 yen to 1,500,000 yen. One third will be supplied by foreigners. Notice of the payment of the first call on the shares will be issued shortly.

YOKOHAMA ELECTRIC EXTENSIONS.—Official charter was given on May 30 to the Yokohama Electric Railway Company to construct a new electric line from Minami-Yoshidamachi at Yokohama to Komachi at Kamakura, via Ookaga, Hino, Yamanouchi and Yukinoshita.

TOKYO TRAMWAY EXTENSION.—The Tokyo Tramway Co. has been granted licenses for the construction of various lines connecting with the Uyeno Oji line, and also of a line between Tokyo and Narita—a distance of 36 miles—which will be built at a cost of two million yen.

TELEGRAPH LINE IN MANCHURIA.—The Acting Governor of Hehlungkiang, Chen Teh-chuan has reported to the Waiwupu that the Russian authorities have proposed to sell the telegraph line along the railways in the provinces of Henlungkiang and Kirin extending over three thousand Chinese li.

RUSSO-CHINESE TELEGRAPH AGREEMENT.—The Russo-Chinese telegraph agreement has been signed. By his agreement the Military lines are to be restored to China at a cost of about 160,000 dollars, and the lines along the River Sungari are restored without any compensation or privileges being demanded.

JAPANESE TELEGRAPHS.—The communications department proposes to construct a special telegraph line between Japan and Korea. The expense will be entered in the Budget for the 41st fiscal year. Hitherto, the Great Northern Telegraph Company's lines were used in the service, and consequent telegraph fees were not so cheap as in Japan.

TIENTSIN TRAMWAY EXTENSION.—The agreement between the Tientsin City Electric Tramway and Lighting Co., Ltd., and the Japanese Municipal authorities for the extension of the Tramway system through the Japanese concession has been signed and the work of laying the lines—started some time ago—will be proceeded with at once.

THE TIENTSIN TRAMWAYS.—Mr. Kato, retiring Japanese Consul-General at Tientsin, and Mr. Gregoire, Director of the Tientsin Electric Tramway Company, signed an agreement concerning the extension of the Company's tramway to the Japanese Concession at this Northern Treaty Port on the 24th instant. By this concession the system will be connected by the shortest route with the Native City and the French and other foreign Settlements. The constructional works will be commenced as soon as materials are ready in the not distant future, so that the useful extension may be completed for traffic as soon as possible.

YOKOHAMA ELECTRIC RAILWAY.—The Japanese Government is favorably disposed to the petition of the Yokohama Electric Railway Company for permission to construct an electric railway to Kamakura and Kanazawa. The Company decided at an extraordinary general meeting of shareholders held in February this year to increase the present capital of 1,000,000 yen to 10,000,000 yen, but owing to the present unfavorable economic conditions, the company held an extraordinary general meeting on June 5 canceling the previous resolution, and will introduce a new bill to increase the capital by 2,000,000 yen, thus making the total capital 3,000,000 yen.

BRITISH GET JAPANESE TRAMWAY CONTRACT.—The "Tramway and Railway World" announces that the first contract for tramway permanent way for Japan, which has been placed in Enland, has just been secured by Messrs. Edgar Allen and Co., of Sheffield. Hitherto, orders of this kind for Japan have been placed with American firms, but in the present case, after keen competition, the British firm was successful. The contract provides for the supply and construction of the whole of the special track work, lay-outs, cross-over, etc., required for the tramways to be constructed in Osaka.

YOKOHAMA TRAMWAY EXTENSION.—The following new lines of the Yokohama Electric Tramway Co. received formal sanction by the authorities under date of May 22nd.

Coast lines (15 miles 28 chains): From Ryuto-Hachimanbashi near Negishi to Kamakura via Isogot Mori, Morinakahara, Sugita, Tomioka, Kanasawa, Susaki and Sambu. From Sambu to Zushi. Inland, line (10 miles 30 chains) from Yoshidamachi to Kamakura railway station along the O-okagawa and Kamakura street via Koden, Yamase, Ofuna, Yamanouchi and Yukinoshita.

The company is also considering a plan to construct a new city line from Surugabashi over the Minami-Yoshidagawa to Ryuto-Hachimanbashi, connecting with the coast line.

TOKIO ELECTRIC LIGHTING.—The Tokio Railway Company has applied to the city office for permission to engage in electric lighting business in the city in general. At present the company is supplying electric light to Akasaka, Azabu and neighborhood, having succeeded to the right to do so originally possessed by the Tokyo Electric Railway Company. The company hopes to supply the light at a fee lower by 40 per cent than ordinary rates. It will pay a royalty to the city amounting to one-sixth of the balance of the net profit after deducting 6 per cent dividend on its capital. An extraordinary general meeting of the Tokyo Electric Light Company approved the proposal to amalgamate the Tokyo Electric Power Company with the Light Company. A meeting of shareholders of the Power Company approved the amalgamation proposal.

THE SHANGHAI TRAMWAYS.—For the purpose of protecting Chinese interests, the Customs Taotai of Shanghai, Jui Cheng, has been instructed by the Viceroy to consult the native gentry and others in regard to the construction of tramways in the Chinese quarters in the vicinity of the foreign concessions with only Chinese money, to prevent foreign interference in future in view of the existing disputes between the Chinese authorities and the British and French companies which hold the tramway concessions in the International and French Settlements. A wealthy Chinese merchant at Hongkong by name of Wen had recently applied to H. E. Tuan for permission to build the proposed tramway at Nanking and Shanghai with a capital of $1,000,000 of Chinese money; but his application was refused on the ground that the former will be built with Chinese Government funds, while the latter will be constructed by the native gentry and others of the port without outside assistance, as desired by Taotai Jui.—*N. C. D. News.*

MUKDEN ELECTRIC TRAMWAY.—Consul General W. D. Straight, of Mukden, reports as follows: The Japanese military authorities, during the occupation of Mukden, constructed a push car tramway along the main thoroughfares and from the city to the railway station. Upon their evacuation this property was turned over to the local Japanese Settlement Association, which has intrusted its operation to a Japanese concern called the Okuragumi, and it is between these two that the profits are at present divided. The line is now used almost entirely for hauling materials for the repair of the city streets, which is now in progress, and the passenger traffic is as yet of practically no importance. The Okuragumi, however, plan within the current year to rebuild the road with a broader gauge and install a horse-car service, with the ultimate intention of turning it into an electric line. As it is probable that similar enterprises will be undertaken at other places, there should be a market in the near future for trucks and electric supplies.

RAILWAYS AND RAILWAY SUPPLIES

RAILWAY DEVELOPMENT IN MANCHURIA.—Japan has placed orders in America to the value of $12,000,000 for the equipment of the South Manchurian railway. The high prices paid will ensure rapid delivery of the material.

PEKING-HANKOW RAILWAY EXTENSION.—A proposal is being considered by the gentry of Shantung for the construction of a branch of the Peking-Hankow Railway from Tsen-tao Station to Chinanfu, a distance of 400 li.

SZECHWAN-HANKOW RAILWAYS—Negotiations are being entered into between the British Syndicate and the Hongkong and Shanghai Banking Corporation for a loan of Taels 15,000,000 for the Szechwan-Hankow railway.

TIENTSIN-CHINGKIANG RAILWAY.—Yuan Shik kai has proposed to arrange a loan with British and German syndicates for the purpose of constructing the Tientsin Chiang Railway.

The Waiwupu seconds the proposition which is being submitted to the Throne for approval.

INDO-CHINESE RAILWAYS.—Ting Ching-tu, Viceroy of Yunnan, has wired to the government that the French authorities have prepared a fund of sixty million francs for the construction of the railroad from Mengtze to Lao-kai. There are now seventeen Italian engineers engaged for the surveying work of that line which will be completed at the end of next year.

THE PEKING-HANKOW RAILWAY.—According to a telegram from Peking dated May 4, the Chinese Post and Telegraph Department is going to purchase the railway between Peking and Hankow by means of a loan from an Anglo-Chinese syndicate. It is reported that even if the syndicate advance the money, it will not be allowed to interest itself directly in the railway.

RAILWAY FOR KUANGSI.—The main line of the railway which the Chinese Government intend to build in the Province of Kuangsi is to run from Kwei-hin to Yungfu, Liu Chou, Kwei Hsien, Hsien Yeh, Yu-hin, Popie to Pakhsi. Work on the following sections will be commenced almost immediately: Kwei Hsien-Pakhoi; Kwei Hsien-Lin-Chou, Kwei Hsien-Kwei Lin and Kwei Hsin-Wuchow. The regulations specify against the employment of foreign capital.

KAGI-GAI AND ARISAN RAILWAY.—Messrs. Fujita & Co., Osaka, are constructing a railway between Kagi-gai and Arisan, in order to carry timber from the great mountain forests. The railway is only 50 miles long, but the forest is 5,000 feet above the sea level, and in consequence the rails are being laid at the grade of one in twenty. The capital was originally fixed at four million *yen*, but it is found the railway alone will cost four millions, and the company has therefore increased the capital by a million *yen*. The work will be finished in 1909.

TOKIO CENTRAL RAILWAY DEPOT.—According to a new plan for the Central Railway Station in Tokio, which was recently submitted to the Railway authorities by Dr. Tatsuno, the station will be three-storeys in height and will occupy a site covering 2,700 tsubo, at a cost of yen 2,500,000. The middle portion of the structure will be reserved for the exclusive use of the Imperial Court, while the right and left wings will be used by the public. On the second floor, there will be a large dining hall, hair dressing saloons, billiards, bath rooms, restaurants, etc. On the third floor, a hotel will be conducted.

TIBET ROPEWAY COMPANY.—A concern has been formed under the name of The Tibet Ropeway Company, Ltd., for the purpose of carrying goods by means of a wire-rope tramway at a lower cost and much quicker than they can be transported in any other way from India into Tibet. The company's prospectus says that a concession has been secured from the Government of India, and the details given of the estimated expenditure and revenue indicate a return of 20 per cent dividend on the undertaking, even on the basis of present trade, which, with improved and cheaper transport, will be sure to expand almost immediately.

ELEVATED RAILWAYS IN TOKYO.—According to the original programme the year 1909 was the date fixed for the opening of the elevated railway between Shinsenza and Eirakucho, Tokyo, but the date will be postponed a little. The fact is that a change will be introduced into the original plans for the construction of the Central Railway Station at Marunouchi, which will be much larger than was originally proposed. In addition to this, the authorities are also planning the construction of elevated railways which will connect the Sobu, the former Kobu, and the former Nippon railways. The total length will be 2½ miles and the expenditure is estimated at yen 25,000,000, including the purchase price of land, etc. The above estimate will be submitted at the next session of the Imperial Diet for approval.—*Japan Advertiser.*

THE CHUAN-HAN RAILWAY.—H. E. Viceroy Chang Chih-tung has telegraphed to the Yuchuanpu protesting against the proposed loan of French capital for the construction of the long-talked of Chuan-Hsan or Szechuan-Hankow trunk railway. H. E. Tsên Chun-hsuan, new President of this Ministry, is in favor of building the line from Chêngtu through Yünnan and Shansi to Honan to connect with the Kaifêng-Loyang or Kaifêng-Chêuchou branch line of the Peking-Hankow railway, instead of from Hankow direct to Chêngtu as originally suggested by the Viceroy Hsi Liang, late of Szechuan (now Viceroy of the Yun Kuei provinces). As the proposed Chuan-Han railway will be the most important and profitable line in the upper Yangtze provinces, H. E. Chang Chih-tung thinks it should be built with Chinese money without either British or French financial assistance. H. E. has dispatched Taotai Kao Lin-yü of Hupeh here to consult the Peking Government and the President of the Yuchuanpu in person about the question.—*N. C. Daily News.*

MANCHURIA RAILWAY CONSTRUCTION.—Consul-General Willard D. Straight transmits the following from Mukden:

The Viceroy of the Province of Kirin (Manchuria) reported that he intended in March or April to commence the construction of a railway between Changchun and the city of Kirin, a distance of about 80 miles. The capital to be employed is given as 40,000,000 taels (about $30,000,000). The sleepers necessary have already been secured and the rails are now in process of construction at Hupeh. The rolling stock is to be purchased abroad. A small part of it is said already to have been ordered through a German firm at Newchwang, and the Viceroy has dispatched a representative to Peking to arrange for the purchase of the remainder.

It is reported in the local press that the Board of Communications at Peking, upon the recommendation of the Imperial High Commissionners, after their tour of investigation through Manchuria, has decided at an early date to begin the construction of a railway from Kaiyuan, a point on the South Manchurian Railway, to the city of Hailungfu, a distance of about 90 miles. It is said that the earnings of the Peking-Tientsin and the Peking-Hankow railways will be used as a part of the capital.

HONAM RAILWAY LOAN.—The Chinese Government has instructed H. E. Li Sheng-to to borrow another 16,000,000 francs from a Belgian Syndicate for the use of the Honam Railway.

SZECHUEN-HANKOW RAILWAY.—President Tsen Chun-hsuen is inclined to alter the route of the Szechuen-Hankow Railway, the new scheme being to enter Szechuen through Shensi Province.

JAPANESE FREIGHT RATES.—The railway department made a freight reduction on June 1 for the conveyance of cocoons, on those lines formerly called Ko-bu and Sanyo as follows:—dried cocoons, 2½ *sen* per ton mile, raw cocoons, 3 *sen* per ton mile.

MANILA RAILWAY CO.—The traffic receipts of the Manila Railway for the week ending June 18 were $67,398 against $35,860 for the corresponding week of 1906, making an aggregate of $979,919 against $732,872 for last year.

MANILA RAILWAY COMPANY.—The few outstanding "A" and "B" bonds, and the First Mortgage Registered stock and 6 per cent notes not deposited under the scheme were paid off on June 13, 1907, when interest ceased.

MANILA RAILWAY.—The traffic receipts of the Manila Railway for the week ending May 6 were $50,619 (including extensions, 207 miles open,) against $45,430 (main line only, 132 miles open) for the corresponding week of 1906; making an aggregrate of $650,109 against $506,806 for last year.—*Mail and Express.*

KOBU RAILWAY TRANSFER.—The Kobu Railway has been notified by the Government that the price of the railway in the transfer to the Government has been fixed at 13,665,858 *yen*. The interest on the sum is 683,272 *yen*. Each share of the company (110,000 shares) is valued at about 124 *yen*.

KANSAI RAILWAY COMPANY.—Official announcement is made that the nationalization of the Kansai Railway Company, Japan, will take place on October 1. This means that the scheme by which the Japanese Government was to take over the various leading railways during a term of years will be applied to the Kansai Railways on the above-mentioned date.

KOWLOON-CANTON RAILWAY.—Recent heavy rains in one construction of the Kowloon-Canton railway, have wrought havoc with the temporary works of the line.

A very gloomy picture of the condition of things prevailing on the section leading to the southern or Kowloon mouth of the tunnel is presented by those who have traversed the route.

THE SWATOW-CHAO-CHOW RAILWAY.—The railway from Swatow to Chao-chow has just been completed. The distance is 90 li, and the construction has cost 2,500,000, the Chinese in Singapore and other British Settlements being mainly responsible for the funds. At the outset the merchants and gentry of Kwangtung had no confidence in the undertaking and placed every obstacle they could in its way. But this was eventually overcome, although not before several riots had taken place.

JAPANESE RAILWAY RELIEF FUND.—The Imperial Railway Department institutes a relief fund for employes of the Government Railways. The employes will contribute 3 per cent. of their wages to the relief fund, from which they are given relief in case of necessity. We are glad that the Government railways have taken the initiative in improving the circumstances of workmen in Japan

KOWLOON-CANTON RAILWAY.—Work is proceeding fairly well on the Kowloon Railway. In spite of the interference caused by heavy rain. The tunnel in the Shatin is in over 500 feet, but progress is now very slow because absolutely solid granite has been reached, and every inch has to be drilled. The main shaft above the Valley is down for 120 feet—it is being worked by Italians. On the south side very good progress is reported, while bridge and ballast work is proceeding apace on the way to Tiapo.

TIENTSIN CHINKIANG RAILWAY.—At a meeting of the principal merchants and officials of the province of Chihli, in Peking, it was resolved that the line should be constructed in three sections, one in Chihli, one in Shantung and one in Kiangsu, the cost of each section to be raised by its respective province. The foreign concession, in May 1898, was granted to the Deutsch-Asiatische Bank and the British and Chinese Corporation, represented by the Hongkong and Shanghai Banking Corporation. The northern half of the line was to be under the control of the German bank, and the southern half was to be under the control of the Hongkong and Shanghai Bank, and to run from Tahsien to Chinkiang on the Yangtse.

THE SANNING RAILWAY.—It is generally reported that the roadbed of the Sanning railway has been condemned by an engineer who has inspected the work. In the first place the roadbed is not wide enough and no mortar or cement was used in its construction, so that the first heavy engine which passes over the road will cause the loose mud and dirt piled up to sink. The work must therefore be done over again in many places, and the hope that the line will be in running order at the end of the year must be deferred. The work is, however, slowly going on and the station house at Sanning City is slowly rising, so that the men who have it in charge mean to go forward with that part of the work as fast as possible.

PUBLIC AND PORT WORKS, DOCK WHARVES, ETC.

TSINGTAU PUBLIC WORKS.—The budget of the German colony of Tsingtau for 1907 provides for the expenditure of 2,300,000 mark on harbor improvements and 1,000,000 marks on the construction of roads, etc.

KOBE HARBOR WORKS.—Cargo-sheds and other provisional construction of the Kobe Harbor Works have been constructed at the mouth of the Minatogawa. At present materials for reclamation and other works are being collected. The work will be completed in seven years.

PORT ARTHUR HARBOR.—The harbor office of the Port Arthur Admiralty has cancelled the projected sale by tender of "blockading" and sunken vessels and has decided to blow up these vessels at a cost of Y350,000. The operation has already commenced and the entrance of the harbor will be entirely free before the end of this year at the latest.

SANDAKAN HARBOR DUES SUSPENDED.—It is announced in the "British North Borneo Herald" of June 1 that no harbor dues will be exacted for a period of two years in the case of vessels calling at Sandakan for coal for bunkering purposes only. If vessels bring or take away any cargo no exemption will be allowed.

SASEBO DOCKYARDS.—Soon after the conclusion of peace the naval authorities started the work of building three new dockyards at the Sasebo naval arsenal. The new docks will have each the length of 780 feet, 700 feet and 600 feet. Reclamation work has recently been finished and the completion of the whole work will be some time in the beginning of 1909.

JODELITE TO PRESERVE TIMBERS.—According to the *Singapore Free Press*, it is estimated that between 3,000 and 4,000 gals. of Jodelite will be used by the contractors, Sir John Jackson, Ltd., for treating the timber to be utilized in connection with the Singapore Harbor. The contractors have used this preservative for similar work in many parts of the world and its efficacy in thoroughly protecting every kind of timber against the attack of white ants, teredos, dry rot, and decay is no longer in doubt.

THE MAULMAIN-MYAWADDI RAILWAY.—Writing on the Maulmain-Myawaddi Railway the Singapore Free Press observes:—If the Siamese Government will run a comparatively short line westwards to join up with the projected railway from Maulmain to Myawaddi, there will be in a few years a direct railway between Rangoon and Bangkok, giving all the advantages of a rapid connection for mails, passengers and lighter lines of goods traffic. As regards passengers from Siam bound for Europe, it would be a great economy in time to proceed from Bangkok to Rangoon. There are a good many interests in Singapore that will have to keep an eye on the possibilities of this Burma Government line to Myawaddi, and its ultimate junction with a line from Bangkok.

FRENCH CONCESSION IMPROVEMENTS.—H. E. Tuan Fang telegraphs to the Waiwupu stating that according to the report of the Shanghai Customs Taotai, Jui Cheng, the French consul-general has requested permission to dredge the creek outside the West Gate to facilitate water communication. As the creek is situated just outside the city wall in the vicinity of the French Concession, Taotai Jui Cheng has been instructed by the viceroy at Nanking and the Governor at Soochow to dredge it with Chinese funds, so as to preserve the sovereign rights of China. The expenses are to be defrayed by the provincial treasury at Soochow. The dredging work will commence at the the West of the Hsia bridge and terminate at the Jihhunkong.

PENANG HARBOR SURVEY.—H. M. S. Merlin, survey ship, arrived in Colombo on May 21 and will be coming through Singapore. She was formerly a sloop, but has been re-fitted at Sheerness as a survey ship. She is on her way to China for a two years' sojourn in Chinese waters where she will be employed in survey work. She is a sister ship of the "Cadmus" and "Clio" She was first commissioned in May, 1903, for a service in the East Indies Squadron, but after a little over a year's service there she was sent home, on the reduction of the Squadron to be sold out of the Navy. The Admiralty thought better of it, and she will be retained on the active list as a survey ship. From the 24th April up to the 11th instant the "Merlin" was busy searching for a rock reported twenty years ago. The survey covered an area of 200 miles but the rock was not found. On the 11th instant the vessel left Socotra for Colombo. She has been commissioned to survey the Penang harbor and its vicinity. This work is to be over in six weeks' time, when the "Merlin" will proceed to British North Borneo. She will next get to Hongkong where the drawing charts of the work already done will be completed.—*Penang Gazette.*

MANILA RAILWAY CHANCES.—The financial correspondents of an evening contemporary writes:—

Were it merely the traffic position of the Manila Railway that we were looking at, the future would seem hopeful, for the traffic position is entirely encouraging. But under the arrangements of some months ago the company will pass into American control, and at the moment the rearrangement of its finances, which is the necessary preliminary to the important development work which the company will have to undertake, is delayed by market conditions, which are not exactly conducive to any simple consideration of raising capital. The investor of means, however, who is prepared to wait a short time for the rearrangement of the company's affairs should have a very good chance, in locking away 6 per cent debentures, now at 114 or so, of a substantial profit. For, before anything final can be done, the question of dealing with the arrears of these debentures has to be taken in hand, and as the arrears are very heavy, it is evident that there must be a very substantial concession. Those who are possessed of means and patience might very well acquire some of the stock for a highly promising profit when the arrears question is settled.—*London Mail and Express.*

SHIPBUILDING, GENERAL MARINE, FISHERIES, ETC.

CANTON TRANSPORTATION.—Certain merchants of Canton are forming a company to run several steam launches between Canton and Fatshan, for carrying merchandise and passengers, especially the former.

HARBIN FISHING COMPANY.—Mukden wires that a fishing company has been established in Harbin with a capital of 400,000 *yen*. The company's aim is to engage in fishing on the Sungari and Nonne.

BURMA PEARL FISHERY.—The Burma Government are disposing of the right to collect pearls and pearl-shells without diving apparatus and to collect green snails and sea slugs in the Mergui Archipelago for the year 1st July 1907 to 30th June 1908.

CABLE TO SAGHALIEN.—The Japanese authorities are planning to lay down a submarine cable between the coast provinces of Siberia and Saghalien, in order to cope with the great trade development now in progress in Eastern Siberia.

KOREAN SEA PRODUCTS.—A company has been formed among the Japanese in Fusan to exploit the sea products of Korea. A Japanese has been sent down there from the residency general to be present at the opening of the deliberations of the promoters of the organisation.

OSAKA IRON WORKS.—The Osaka Iron Works now employs 3,800 men and has the following construction work in hand:—Four steamers, of from 750 tons to 1,800 tons gross each; a dredger of 300 tons; a whaler of 120 tons; a tank steamer of 65 tons; and other smaller vessels.

LARGE SMELTING FURNACE.—At Edamitsu Iron Foundry there will be built a large smelting furnace in addition to the present two furnaces. But much time being required in purchase of materials necessary for its construction the work will not be commenced for some six months.

MARINE PRODUCTS BANK.—A scheme is contemplated among the leading marine products merchants of Tokyo and Osaka to establish a bank for the purpose of affording facilities to marine products merchants. Mr. Matsuoka, Minister of Agriculture and Commerce, Mr. Kamiyama, Director of the Marine Products Bureau, and other prominent officials are supporting the scheme.

LAUNCH FOR DAVAO.—Ethan E. Allen of the Steam Engineering Department of the Cavite Navy Yard has just delivered a thirty foot launch to Mr. Crowthurst of Davao. The launch is equipped with petroleum engines of powerful pattern and was taken from Manila to Davao under her own power. Mr. Allen is an expert in petroleum engines and the equipment on the launch *Fury* is the result of most successful experiments.

NEW JAPANESE STEAMERS.—The Mitsu Bishi Dockyard and Engine Works has received an order from the Toyo Kisen Kaisha for the construction of a passenger steamer of 13,500 tons, in addition to the two 13,000 ton vessels now under construction, and a tank steamer of 12,000 tons. The passenger boat is to be completed for sea by September, 1909, and the other by March of the same year.

NIPPON YUSEN-KASIHA.—The dividend of the Nippon Kaisha for the business term ended April last will be at the same rate as in the previous namely 12 per cent. Owing to the sudden increase of steamers, both foreign and domestic, after the late war the net profit of the company for this term was less than that of previous terms, but there being reserves amounting to 700,000 *yen* from last term there is no decrease in dividend.

DAI NIPPON TRANSPORTATION CO.—The Japan Mail states that the leading transportation, shipping, and landing agents of Yokohama and Tokyo have organized the Dai Nippon United Transportation Company with a capital of $2,500,000. The company will establish branches at important ports throughout Japan. All Japanese shipping and landing, in Yokohama, it is said, were to close their offices on February 1 and join the new concern.

HUGE JAPANESE FLOATING DOCK.—The construction of a floating dock large enough to accommodate a steamer of 12,000 tons for the Mitsu Bishi Yard at Kobe has now been taken in hand, says the *Japan Chronicle*. The total weight of the iron works of the dock, we are told, is 5,000 tons, a portion of which, weighing about 1,000 tons, has been ordered from England. The rest is being made at the Imperial Iron Foundry at Wakamatsu near Moji Part of the material has already arrived at Kobe. The dock is expected to be completed in the spring of 1909. The cost is estimated at close upon yen 1,700,000.

OSAKA-HONGKONG STEAMSHIP LINE.—There is a scheme among navigators of Okinawa Prefecture (the Loochoos) to open a steamship line between Osaka and Hongkong, via Kagoshima, Naha (the Capital of the Loochoos), Formosa, Amoy and Foochow, asking the Government for a subsidy of 250,000 yen for five years at the rate of 50,000 yen per annum. The scheme will be executed after the completion of the proposed Naha harbor works and in that case two certain steamship companies in existence will be amalgamated.

Yangtsze Carrying Trade.—The following steamship companies have formed a combine for the purpose of conducting the Yangtsze carrying trade:—The Nippon Yusen Kwaisha, Osaka Shosen Kwaisha, Konan Kwaisha, and the Daito Kwaisha. The Minister of Communications, on receiving representatives of the companies, explained that the Government regarded as of much importance the development of the maritime carrying trade between Japan and Yangtsze ports, and that the Treasury was prepared to grant a suitable subvention. Mr. Rempei Kondo, President of the N. Y. K., replied that the amalgamation was now practically settled, and that the capital of the new concern would be -Y-12,000,000. Services will be opened, not only in the Yangtsze, but also along the coast of China, within such limits, however, as shall obviate competition with the existing lines of the N. Y. K. and the O. S. K. lines.

MINES, MINERALS AND THE METAL TRADE

Korean Mining Concession.—The Korean Government has decided to grant the right to work gold mines to citizens of England, Germany, France, the United States, and Italy.

Japanese Oil Combine.—The Nippon Kerosene Oil Company at that place has concluded a contract to purchase the International Kerosene Oil Company's business for 1,750,000, yen.

Lanchou Colliery.—Viceroy Yuan Shih-kai contemplates opening a colliery in Lanchou with a capital of two million taels, and a deputy has been sent to the place to make investigations.

Heilungkiang Gold Output.—The Heilungkiang officials report that the annual output of gold in that province is valued at Rs 80,000,000. The value of the grain harvest, Rs 10,000,000, manufactured goods Rs. 5,000,000, skins and fishing Rs. 2,000,000.

Kaiping Mines.—Native papers state it is reported that the Kaiping mines are becoming an Anglo-Chinese enterprise.
The present company is to pay over Taels 4,000,000 and appoint Chang Yen Mao Chinese Director General.

Kwangtung Coal Mines.—Owing to the financial difficulties in the Kuangtung Province Viceroy Chou Fu has given instructions to the director of the bureau of agriculture and labor to devise means to raise capital and float companies to work all the mines in the Kuangtung Province Viceroy Chou Fu suggested the working of all the coal mines first.

Japanese Oil Industry.—Professor S Otsuka referring to the oil industry of Japan in a speech at the recent meeting of the Nippon Mining Industrial Association said that the yield of oil in Japan was only 35.7 per cent of what was consumed; the great bulk of oil needed in Japan was consequently imported from abroad. The yield of the world in 1902 was 24,020,000 tons; in 1903, 25,380,000 tons; in 1904, 28,577,900 tons; and in 1905, 26,888,300 tons. The output of oil throughout the world was gradually increasing through improvements in mining machinery. The figure for the last mentioned year certainly showed some decrease, but this was owing to the industry in Russia and other countries being impeded by strikes. In conclusion, the speaker pointed out the imperfect arrangements which existed in Japan with regard to the kerosene industry and recommended further visits to the improved works in Europe and America.

Pekin Syndicate Mines.—The directors have issued a circular in which they state that since the date of the annual general meeting considerable progress has been made with the colliery at Ja-Mei-Sen, Honan, and a report by the joint consulting engineers has been received, from which the following extracts are taken:—At that time the No. 1 shaft was already through the coal seam, at a depth of 630 ft., and a square curb was put in at this point, and the walling completed up to the finished portion above. The water being dealt with by the sinking pumps was about 1,000 gallons per minute, and it was necessary that a more permanent arrangement should be adopted. The new pump-house was, therefore, made in the sandstone at 618 ft., and driven to the north-west, and a pair of Worthington compound jet condensing pumps have been erected, and are now satisfactorily working. The level beyond the pump-house was driven forward to a distance of 60 ft. and at that point a borehole was put down in the floor of this level to a depth of 62 ft., at which it reached the top of the coal seam, and was sunk to a further depth of 6 ft. into the seam, but the whole thickness has not yet been ascertained. A new level at 656 ft. has been started to the west with the object of intercepting the coal seam between the point where it was found in the shaft and the point proved by the borehole mentioned above. There is every reason to believe that the general dip of the measures in the immediate vicinity of the Ja-Mei-Sen shaft is to the northwest, and that the level of 556 ft. will strike the coal seam in a short time, and then exploration headings can be driven to the right and left in the seam itself. No further sinking has been done in the No. 2 shaft, but as soon as the developments from No. 1 shaft have progressed sufficiently operations will be resumed in this shaft by tubing through the collapsed portion. The Shangpeitse borehole, about 3,000 ft. to the north-west of Ja-Mei-Sen, has been pushed on, and is being continued, having now reached a depth of 402 ft., and is now in post-carboniferous measures.

FINANCIAL AND MISCELLANEOUS

Proposed Chinese Bank in Thibet.—The Board of Finance has decided to establish a Chinese bank in Thibet with a capital of two million taels.

Japanese Spinning Trusts.—The Chita Spinning Company in Owari province held an extraordinary general meeting of the shareholders on May 29 in order to obtain approval of the proposed amalgamation with the Miye Spinning Company.

Japan's Postal Savings Banks.—According to the investigations completed at the end of March, the number of depositors in the Postal Savings Banks throughout Japan was 7,825,989 and the amount of their deposits 79,324,629 yen.

Tientsin Savings Bank.—A native savings bank is going to be opened in the Viceroy's Bank near the Native Customs in the city by order of H.E. Viceroy Yuan. Deposits will be accepted of one dollar and upwards. The bank was open on the 5th June.

Tung-Chou Paper Mill.—The President of the Tu-chih Pu (Board of Finance) has obtained permission to spend Tls. 1,200,000 for the establishment of the proposed Government paper mill at Tung-Chou and the Printing Office at Ching-ho (in the west of Peking.)

Davao Hemp Company.—Papers have been filed in the Philippine Land Office by G. W. Sharpe, formerly district treasurer of Lanao, for the purpose of acquiring 2,500 acres of land on the Digos river about 35 miles from the town of Davao. It is the purpose of the company represented by Mr. Sharpe to plant the greater portion of the area in hemp and to experiment in the growing of cocoanuts, rubber, and other products.

Japanese Rice Flour Mills.—The Japan Rice Cleaning Mill at Hyogo has now started a flour mill in connection with its business, and it is said to be turning out 350 barrels by day and by night. The daily producing capacity of this mill is said to be 1,000 barrels. The Japan Flour Mill, also at Hyogo, will be ready to open operations before the end of the year. When these three mills are in full working order 7,400 bags of flour will be turned out daily in Kobe.

Japanese Camphor and Salt Monopolies.—The estimated net profit from the camphor monopoly in Japan for the 1905-6 fiscal year was about 50,000 yen, but the actual profit was about 400,000 yen. The estimated profit from the salt monopoly for the 1905-6 fiscal year was about 12,600,000 yen, but the actual profit is reported to have been 12,800,000 yen. The authorities expect to obtain more revenue this fiscal year from these sources by introducing various improvements.

Swatow Sugar Industry.—Raw sugar is one of the products of Chin Chew, China. Of late years, owing to the stagnation of trade, the local consumption of raw sugar has diminished, and consequently the exportation of this commodity has declined considerably. Viceroy Chou Fu, discovering this, has delegated a special deputy, Cheong Chungloong, and a foreigner, who is an expert in this line of trade, to establish a sugar refinery in Swatow in order to manufacture sugar and export to foreign countries.

Enemy of the Locust.—The discovery is reported in the Argentine Republic of a natural enemy of the locust—a locust parasite in fact. Dr. Massine, an Argentine entomologist, says that every locust-killing fly lays from 300 to 500 eggs, depositing one in every locust, the eggs rapidly developing into grubs with fatal consequences to the locust. He recommends the Agricultural Defence Commission of his own country to propagate this effective enemy of the locusts, and should his laboratory experiments not be misleading no doubt *Lamoska langosticida*, as the locust fly is called, will be introduced generally to combat locust scourge.

Singapore Cotton Trade.—Regarding importation of cotton fabrics at Singapore, Consul-General D. F. Wilber writes:
In 1905, 4,750,000 pieces of cotton goods were imported, made up as follows: 3,100,000 pieces of plaid cotton, 967,000 pieces of dyed cotton, and 683,000 of printed sorts. The United Kingdom furnished over 4,000,000 pieces of all kinds of the total amount imported, valued at $7,100,000; the Continent of Europe over 441,000 pieces, valued at $800,000. From the United States direct only 3,000 pieces were received, a decrease of one-third from 1904. The British sales of piece goods in the Straits Settlements increased from 100,230,200 yards in the calendar year 1904 to 121,670,400 yards in 1905 and to 131,212,300 in 1906.—*B. of M.*

Formosa Tea Industry.—Consul J. H. Arnold, of Tamsui, furnishes a report on the Formosa tea industry from which the following abstract is taken:
The exports of tea from Formosa during 1906 amounted to 21,992,145 pounds, valued approximately at $3,500,000, of which the United States took 17,159,310 pounds, against 18,061,911 pounds in 1905. In February, 1906, the Formosa local government changed the tea manufacturers' tax so as to make it payable by the exporters instead of by the manufacturers, as was formerly the case. This tax amounts to $1.20 per 133⅓ pounds. In addition to this tax there is also imposed by the Government an export tax of 80 cents upon every 133 ⅓ pounds. During 1906 the manufacturer's tax and the export tax netted the government $350,000.

HEMP STATISTICS, JUNE, 1907

(Courtesy of C. N. Nicholson, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up to 30th June		359,489 *Bales.*
Arrivals of hemp at Cebu up to 30th June		105,731 *Bales.*
Arrivals of hemp at all Ports up to 30th June		465,220 *Bales.*
Stocks on hand in Manila and Cebu on 1st January 1907		63,432 *Bales.*
Total		528,652 *Bales.*
Export to all parts to date 30-6-07	431,332 *Bales.*	
Local consumption estimated at	7,675 "	439,007 *Bales.*
Total stocks at Manila and Cebu on 1st July, 1907		89,645 *Bales.*

EXPORT OF HEMP, JUNE 1907.

Date	*Vessel*	*London*	*L'pool*	*Atlantic U. S.*	*Pacific East & California*	*Australia*	*Other pts.*	*Total Bales*
	F'wd:—	121,988	40,085	140,711	17,150	4,685	29,435	354,054
June 3	Indrani			10,985				10,985
" "	Zafiro	3,100	550				701	4,351
" 4	Aldeham						100	100
" "	Tean	100						100
" 7	Yuensang	250					130	380
" 8	Yawata Maru						151	151
" "	Rubi	1,050					500	1,550
" 10	Tsinan					200	100	300
" "	C. Lopez y Lopez	1,000	3,550				24	4,573
" 11	Taming	100	250					350
" 13	Changsha						606	606
" 15	Zafiro	500	500				600	1,600
" 18	Kennebec			16,354				16,354
" 21	Yuensang						200	200
" 23	Rubi	1,200					72	1,272
" "	Achilles.....Cebu	4,316	2,175				350	6,841
" 24	Aragonia			11,186				11,186
" "	Sungkiang.....Cebu	100					30	130
" "	Manila						150	150
" "	Prinz. Sigismund					80		80
" 26	Empire						100	100
" "	Taming	3,100					100	3,200
" 28	Zafiro	500					550	1,050
" 29	Nippon Maru				550			550
" "	Kennebec.....Cebu			11,068				11,068
" "	Kaifong.....Cebu	50						50
	Total	137,354	47,110	190,304	17,700	4,965	33,899	431,332

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for July.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$10,000,000	80,000	$125	$125	g £1,000,000 s $11,000,000 i $250,000	$1,721,558	31-12-06	£1.15/- and bonus of £1 @ ex. 2/3¾ $24.33 making $40.80 for 1906	4¾	$680 ex new issue $522½ n. issue £79 ex n. issue £59 new issue (first call)
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £12,735 $300,000	$71,239	31-12-06	$2 (London 3/6) for 1903	....	$51
Russo Chinese Bank		Rbs. 15,000,000 Tls. 2,000,000	80,000 16,000	Rbs. 187½ Tls. 125	Rbs. 187½ Tls. 125	g Rbs7,130,500 s Rbs2,000,000 s Tls 800,000					Tls. 125
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,675,000 j $200,000	$233,638	31-12-05	$20 for 1905	7½	$270 buyers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £110,000 s Tls. 100,000 f Tls. 50,000	Tls. 185,529	30-6-06	Interim of 7s. 6d. for account 1906 at ex. 2-10-11-16 per tael	6	Tls. 75
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £70,000 f $456,407 j £125,137.15 u $817,628	$1,460,490	31-12-06	Final of $12 making $42 for 1905, and interim of $30 for account 1906	5½	$760 buyers
Yangtsze Ins. Association, Ld.	1862	$800,000	8,000	$100	$60	$850,000 j $136,287 f $ 15,527	$461,476	31-12-06	$12 for year ending 31. 12. 05	7	$175 buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $320,449 f $7,616	$362,980	31-12-06	$6 and bonus $2 for 1905	9½	$87 sales
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,256,483	$435,236	31-12-06	$40 for 1905	12½	$325 sellers
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$365	31-12-06	$1 for 1906	6¾	$15 buyers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $93,562	Nil.	30-6-06	$2½ for year ended 30-6-06	6	$41
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $600,000 f $144,386	$20,170	31-12-06	$1 for 2nd ½-year making $2.00 for 1906	6¾	$29¾ sales
Indo-China Steam Navigation Co., Ld.	1882	m £600,000	2) 60,000	£10	£10	£120,000 i £280,958 h £3,999	£2,452	31-12-05	10/- @ ex. 2-1-9-16 = $4.69 for 05	....	$69
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 54,372	Tls. 13,327	31-12-06	Final of Tls. 3 making Tls. 5½ 1906 Final of Tls. 3½ making Tls. 5½ 1906	11½ 10½	Tls. 46 sales Tls. 50 buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£400,000 i £5,167.14-1	£85,355-6-10	31-12-05	1/-(Coupon No. 7) for 1906	2½	45/-
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $32,957	$137	30-4-07	$1.00 50 cts. for year ended 30-4-07	4 3½	$25 $15
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 419,479 e Tls. 62,000 i Tls. 81,200 q Tls. 30,000	Tls. 18,730	31-12-06	Final of Tls. 2 making Tls. 6 for 1906	12½	Tls. 48
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o $345,741 e $450,000 r $ 56,848	$9,218	31-12-06	$8 for year ending 31-12-06	8	$100 buyers
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	*Dr.* $138,523	31-12-06	$3 for 1897	....	$21
Perak Sugar Cultivation Co., Ld.	....	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 8,935	31-8-06	Tls. 4. (8%) for year ending 31-8-06	4¾	Tls. 85 sales
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £110,000 h £12,289	£12,546	28-2-06	Interim of 1/6 for account year ending 28-2-07	4	Tls. 15.90 sellers
Oriental Consolidated Mining Co., Ld.	1901	G. $5,000,000	y 500,000	G. $10	G. $10	none	G $909,050	30-6-06	Interim of 50 cts. for % 1906	....	G. $5
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	*Dr.* £15,481	31-3-06	No. 12 of 1/- = 48 cents	....	$6 buyers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	z 18,000	$25	$25	$64,124	$10,335	31-12-06	$1¾ for year ending 31-12-06	10	$17½ sellers
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$2,000,000	40,000	$50	$50	$550,000 t $23,152 i $30,000	$3,047	31-12-06	Final of $2½ making $5 for 1906	6½	$80
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	v $50,000 $56,299	$400,933	31-12-06	$6 for 2nd ½-year making $12 for 1906	11½	$105 sellers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 3,997	30-4-06	Final of Tls. 4 making Tls. 8 for 05-'6	10½	Tls. 76 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	14) 36,000	Tls. 100	Tls. 100	b Tls. 487,210 r Tls. 100,000 p Tls. 190,100 e Tls. 75,000	Tls. 23,117	31-12-06	Final of Tls. 10 making Tls 18 for year ending 31-12-06 (on old capital)	8½	Tls. 222½ sellers
Vulcan Ironworks, Ld.	1905	Tls. 500,000	1,000	Tls. 500	Tls. 500	....	Tls. 12,187	31-8-06	Tls. 50 for year ended 31-8-06	10	Tls. 500 sellers
Yangtsze Wharf & Godown Co., Ld	1902	Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 12,936	31-12-05	Tls. 18 for 1905	8½	Tls. 212½
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 15,000	Tls. 3,388	28-2-07	Tls. 6 for 14½ months ending 28-2-07	6	Tls. 103
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	$8,418	30-6-06	$3 for year ending 30-6-06	10½	$28½
Astor House Hotel, Ld. (Tientsin)	....	Tls. 100,000	2,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-06	Final of Tls. 6½ making Tls. 11½ for year ending 28-2-06.	8½	Tls. 140 buyers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$9,178	31-12-06	$1.80 for 1906	12	$15
China Land and Finance Co.	1903	Tls. 321,250	6,425	Tls. 50	Tls. 50	Tls. 10,000	Tls. 4,393	1-3-07	Tls. 5 for year ending 28-2-07	10	Tls. 50
Hongkong Hotel Co., Ld.	1866	$600,000	12 000	$50	$50	$648,975 r $26,075	$371	31-12-06	$5 for 2nd half-year making $10 for 1906	8½	$118
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$56,218	31-12-06	Final div. of $3½ making $7 for 1906	6½	$105 sellers
Hotel des Colonies Co., Ld.	1902	Tls. 225,000	9,000	Tls. 25	Tls. 25	h Tls. 29,783	Tls. 1,935	31-3-06	Final of 6% = making 10% for 1905	....	Tls. 13
Hotel Metropole Co., Ld.	1904	$200,000	2,000	$100	$100	none	$4,699	30-6-05	Final of $6 making $10 for the year	12½	$80
Humphrey's Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $208,386 e $50,000	$11,567	31-12-06	80 cents for 1906	7½	$10¾

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCKS	When Established	Capital	No. of Shares	Value	Paid Up	Reserve	Working Account	Date	Last Dividend	Approximate Yield per cent. per annum at Present Quotation.*	Closing Quotations
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$1089	31-12-06	$2½ for 1906	6¾	$37 buyers
Shanghai Land Investment Co., Ld.	1888	Tls. 3 900,000	78.000	Tls. 50	Tls. 50	Tls 869,493 / e Tls. 170,000	Tls. 61,978	31-12-06	Final div. of Tls. 3 and bonus of Tls. 1½ (old shares) and div. of 75 cents and bonus of 19 cts. (new shares) for 1906	7½	Tls. 104 buyers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 71,685	Tls. 1,973	31-12-06	Final of Tls. 5 making Tls. 8 for 1906	8	Tls. 100 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,519	31-12-06	Final div. of $2.10 making $4.10 for 1906	8¼	$50
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 / Tls. 45,939	Tls. 64,986	31-10-06	Tls. 10 for year ended 31-10-06	15¾	Tls. 64 sales
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $110,000	$21,660	31-7-06	$1¼ for year ended 31-7-06	11	$11½
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 36,211	30-9-06	Tls. 6 for year end. 30-9-06 (8%)	12	Tls. 50
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	7) 8,000	Tls. 100	Tls. 100	none	Tls. 31,469	31-12-06	Tls. 8 for 1906	9¾	Tls. 82½ bnyers
Soy Chee Cotton Spinning Co., Ld.	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	15¼	Tls. 330
MISCELLANEOUS.											
Anglo German Brewing Co., Ld.	1904	$100,000	4,000	$100	$100	none	$906	31-12-06	$7 for 1906	8	$87½ buyers
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12-6	£814	£856	31-12-05	1s. 3d. for 1905	8¼	$7 sellers
Campbell, Moore & Co., Ld.	1886	$12,000	1,200	$10	$10	$9,000	$653	31-12-06	$3 for 1905	....	$20 sellers
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	none	Nil.	31-12-06	$1 for 1904	....	$9 sales
China Flour Mill Co., Ld.	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 50,000	Tls. 889	31-12-05	Final of Tls. 5 making Tls. 10 for 1905	15½	Tls. 64 sellers
China Light & Power Co., Ld.	1901	$550,000	50,000	$10	$10	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$6½
Do. do. Special Shares	1907		17) 50,000	$1	$1						
China Provident Loan & Mortgage Co., Ld.	1898	a $1,000,000	100,000	$10	$10	$115,000	$855	31-12-06	80 cents for 1906	9	$9 sellers
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	$50,000	$2,555	31-7-06	$1.30 for year ending 31-7-06	8¾	$15 buyers
Green Island Cement Co., Ld.	1889	$2,000,000	200,000	$10	$10	$411,000 / p $500,000	$10,804	31-12-06	Final of $1¼ making $2 for year ending 31-12-06	12¼	$16½ sellers
Hall & Holtz, Ld.	....	$420 000	21,000	$20	$20	$186,000	$15,002	28-2-07	$2½ for year ending 28-2-07	11	$21 buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$2,953	28-2-07	$1.00 for year ending 28-2-07	7	$14½
Peak Tramways Co., Ld. / Do. (New)	1907	$750,000	25,000 / 50,000	$10 / $10	$10 / $10	none	$2,655	30-4-07	$1 per share ior period from 19th Oct. to 30th April, 1907	9¼	$10¾ s. & b.
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $105,000	$4,361	31-12-06	Final of $18 making $22 for the year ending 31-12-06	9¼	$24
Hongkong Rope Manufacturing Co., Ld.	1883	$500,000	50,000	.... $10	$10	$65,000	$4,212	31-12-06	$2 for year ending 31-12-06	9	$22½ buyers.
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / i Tls. 27,603	Tls. 10,374	31-10-05	Second interim div of Tls. 7½ making Tls. 15 for account 1907	10	Tls. 292½ b.
Mondon (E. L.), Ld.	1902	Tls. 350,000	7,000	Tls. 50	Tls. 50	none	Dr. Tls. 81,060	31-12-05	Tls. 5 for 1902	....	Tls. 25
Philippine Co., Ld.	1904	$675,000	67,500	$10	$10	none	Dr. P. 34,324	31-12-05	None	....	$5 buyers
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 7,990	31-12 06	Final of Tls. 3½ and bonus of Tls. 1½ for year ending 31-12-06	4½	Tls. 107 sellers
Shanghai Horse Bazaar Co., Ld.	1904	Tls. 270,000	5,400	Tls. 50	Tls. 50	Tls. 67,323	Tls. 9,751	31-12-05	Tls. 4 for 1905	....	Tls. 45 sales
Shanghai Pulp & Paper Co., Ld.	....	Tls. 450,000	4,500	Tls. 100	Tls. 100	Tls. 45,000 / e Tls. 8,000	Tls. 3,354	31-12-06	Final of Tls. 5 making Tls. 10 for 1906	12½	Tls. 80 sellers
Shanghai-Sumatra Tobacco Co. Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / w Tls. 50,000	Tls. 7,843	31-10-06	Final of Tls. 6 making Tls. 10 for 1906	9	Tls. 110 buyers
Shanghai Waterworks Co., Ld.	1881	£288,000	8,175 / 7,200	£20	£20 / £15	Tls. 190,000	Tls. 85,592	31-12-05	Int. div. of 15/- for half-year 06 / Int. div. of 5/- for half-year 1906	.... /	Tls. 325 / Tls. 295
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $41.934	28-2-06	None	....	$23
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	214	31-5-06	30 cents (old) and 15 cents (new) for year ended 31-5-06	4¼	$7 sales
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 / e Tls. 4,000	Tls. 1,012	30-4-05	Interim of Tls. 4 for year 1905-6	7¾	Tls. 100 buyers
Union Waterboat Co., Ltd.	1905	$500.000	16) 50,000	$10	$10	none	$349	31-12-06	First year	....	$12¾ sales
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$25,000	$752	31-5-06	70 cts. on 9,900 ord shares & 9.90 on 100 Founders for year endg. 31-5-06	6½	$10½ buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 / $25,000	$5,482	31-12-06	Final of 40 cts. making 80 cts. per share for year ending 31-12-06	7¼	$11 sales.
William Powell, Ld.	1901	$150,000	15,000	$10	$10	e $4,500	$182	30-6-06	Final of 30 cents making 80 cents for year ending June 30t1h 906	10	$8
Weeks & Co., Ld.	....	$400,000	20.000	$20	$20	$10,000	$6,898	28-2-07	Final of $1.20, making all $2 for year ending 28-2-07	10	$20 buyers.

LOANS AND DEBENTURES.	Agents for the Loan.	Amount of Loan.	Par Value	Outstanding Bonds.	When Payable.	Closing Quotations.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. Plus accrued interest
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par. Plus accrued interest
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 99 Plus accrued interest
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	Tls. 105 Plus accrued interest
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431.960	Half yearly, June 30th and December 31st	par. Plus accrued interest
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½. Plus accrued interest
China Light and Power Co., Ltd. 6% Debentures of 1907	....	$500,000	$100	....	Half yearly, Jnne 30th and December 31st.	par.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 5,725 shares unissued.
2 First issue of 60,000 of which 10,411 unalloted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unalloted.
6 1,616 shares unalloted.
7 842 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 0,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 198 shares unissued.
15 22,250 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government-Kuping Tls. 5,000,000.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
Dr Deficit.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, June, 1907)

Date of Formation	Capital	Capital paid up	No of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10			Belat Tin Mining Co., Ltd	15.50	15.75	$15.75
1907	$300,000	225,000	22,500f*	10	10			Bruang Ltd	....	9.50	9.50
1903	£400,000	350,000	350,000a	1	1			Duff Development Co., Ltd	....	2.60	2.50
1901	$600,000	600,000	60,000	10	10		10% interim for 1906	Bruseh Hydraulic Tin Mining Co., Ltd	15.00	17.00	17.00
1905	£30,000	30,000	30,000	1	1		3/- during 1906	Jeher Hydraulic Tin Mine, Ltd	....	15.00	15.00
1907	$400,000	$375,000	37,500b	10	10			Kanaboi, Ltd	....	8.50	8.50
1901	£60,000	60,000	60,000	£1	£1		-/6 interim for 1907	Kinta Tin Mines, Ltd	12.00	12.25	12.25
1906	£100,000	£90,000	90,000c	£1	£1			Kledang Tin Mining Co., Ltd	14.50	14.75	14.75
1905	$150,000	99,000	9,900d	10	10	6,000	55% for 1906	Kuantan Tin Mining Co., Ltd	21.50	22.00	21.50
1906	£120,000	£120,000	120,000	1	1			Lahat Mines Ltd	....	9.50	9.50
1906	£30,000	£25,000	20,000	£1	£1			Malaya and Siam Corporation, Ltd	....	....	£1 10s. 0d.
			10,000	10/-	10/-			" " " " "	....	15/-	15/- prem.
1906	$450,000	$337,500	45,000	10	7.50			Malacca Tin Dredging Co., Ltd	....	6.50	6.50
1906	£250,000	£145,000	600,000	5/-	2/6			Pahang Consolidated Co., Ltd	20/6	20/9	20/6 prem.
			100,000	£1	£1			" " " 7% *Pref*		....	nominal.
1904	£120,000	100,000	100,000e	1	1		4/6 interim for 1907	Pusing Lama Tin Mines, Ltd	20.50	21.00	21.00
1905	£27,000	21,750	21,750f	1	1			Rambutan, Ltd	21.75	22.50	22.50
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust Gold Ming Co., Ltd, *Fully. pd.*	5.00	5.25	5.00
			150,000	1	18/10		1/- " " "	*Contrib.*	5.00	5.25	5.00
1905	£40,000	35,200	35,200g	1	1			Redhills Tin Mining Co., Ltd	...	23.00	23.00
1898	f.2.000,000	1,800,000	18,000	100	100		52½% for year ending 31-12-06	Redjang Lebong Mining Co	....	....	650.00
1900	$110,000	110,000	22,000	5	5		10% for 1907	Royal Johore Tin Mining Co., Ltd	....	2.50	2.50
1907	£80,000	£60,000	40,000	1	1			Sempam Tin Mines, Ltd	....	8.75	8.75
			40,000	1	10/-			" " " "	....	....	......
1906	$850,000	850,000	85,000	10	10		20% interim for 1907	Serendah Hydraulic Tin Ming. Co., Ltd	13.25	13.50	13.50
1899	$230,000	230,000	23,000	10	10		5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd	...	7.00	7.00
1907	£90,000	70,000	70,000g*	£1	£1			Tekka, Limited	11.50	12.00	12.00
1902	£160,000	149,185	149,185h	1	1		2/- interim for 1907	Tronoh Mines, Ltd	...	22.50	22.50
								RUBBER			
1905	£150,000	104,937 10/-	46,500i	1	1		18% for year ending 31-12-06	Anglo-Malay Rub. Co., Ltd. *Fully paid*	....	....	£3 12s. 6d.
			93,500	1	12/6			" " " *Contributory*	....	....	£3 2s. 6d.
1905	$200,000	87,400	1,700j	10	10			Balgownie Rub. Estate Ltd. *Fully paid*	19.00	....	$19.00
			8,800	10	8			" " " *Contributory*	17.00	....	$17.00
1904	£30,000	11,125	7,000k	1	1			Batu Caves Rub. Co., Ltd. *Fully paid*	....	....	£2 2s. 6d.
			11,000	1	7/6			" " " *Contributory*	....	....	£1 12s. 6d.
1905	$700,000	610,000	61,000l	10	10			Batu Unjor Rubber Co., Ltd	20.25	....	$20.25
1903	£70,000	61,000	61,000m	1	1		5% interim for 1906	Bukit Rajah Rubber Co., Ltd	....	....	£5 7s. 6d.
1906	$150,000	125,000	12,500n	10	10			Castlewood Rubber Co., Ltd	8.00	8.50	$8.25
1904	£12,000	10,500	6,000	1	1		5% to 31-3-06	Cicely Rubber Estates Co., Ltd	....	....	£2 17s. 6d.
			6,000	1	15/-		10% to 31-3-06	" " " " 5% *Pref*	....	....	£2 15s. 0d.
1905	£75,000	55,000	55,000o	1	1		10% for year ending 31-12-06	Consolidated Malay Rub. Estates, Ltd	....	....	£2 3s. 9d.
1906	£310,000	227,783 15/-	181,454p	1	1		11% for year ending 31-12-06	Highlands & Lowds. Para Rub. Co., Ltd. *Fully paid*	....	....	£2 10s. 0d.
			123,546	1	7/6		11% for year ending 31-12-06	" " " " *Contributory*	£16.0	£1.7.6	£1 7s. 6d.
1906	£180,000	£180,000	18,000	1	1			Kuala Lumpur Rubber Co., Ltd	....	£17.6	£1 7s 6d
1906	f.1 75,000	f.117,500	80	f.250	250			Langen Rub. and Cocoanut Co., Ltd	....	....	f.250.
			460	f.250	125			" " " " " "	....	....	f.125.
			160	f.250	250			" " " " " *Deferred*	....	....	f.250.
1906	$250,000	225,000	22,500q	10	10			Ledbury Rubber Co., Ltd	12.00	....	$12.00
1895	£50,000	32,332 10/-	10,000	1	1			Linggi Plantations Ltd., 7% *Pref*	....	....	
			10,000	1	1		15% for 1906	" " " *Ordinary*	....	....	£4 12s. 6d
			10,000	1	1				....	....	......
			10,000	1	5/-				....	....	£2 10s. 0d.
1906	£300,000	260,625	115,000	1	1		7½% for year ending 31-12-06	Malacca Rnbber Plantations 7½% *Pref*	....	£12.6	£1 2s. 6d,
			140,000	1	1			" " Ordinary *Fully paid*	....	19/-	19/-
			45,000	1	2/6			" " *Contributory*	....	....	nominal.
1903	£30,000	20,000	20,000r	1	1		40% for 1906	Pataling Rubber Estates Synd. Ltd	....	....	£6 10s. 0d.
1906	$250,000	225,000	22,500i*	10	10			Bagalla Rubber Co., Ltd	....	9.00	$9.00
1904	£20,000	8,794	2,588h*	1	1			Sagga Company Limited	....	£2,0.0	£2 0s. 0d.
			12,412	1	10/-			" " "	....	....	......
1904	$100.000	85,000	850s	100	100		20% for year ending 31-1-07	Sandycroft Rubber Co., Ltd	300.00	....	$300.00
1898	£30,000	26,762 10/-	26,300	1	1		40% for 1906	Selangor Rubber Co., Ltd	....	....	£7 10s. 0d.
			3,700	1	2/6			" "	....	....	nominal.
1903	$250,000	208 000	1,300t	100	100			Sing. & Johore Rub. Co., Ltd. *Fully paid*	....	190.00	$190.00
			1,200	100	65			" " " *Contributory*	....	165.00	$165.00
1905	$100,000	83,550	8 355u	10	10			Sione Rubber Co., Ltd	....	14.00	$14.00
1904	£50,000	24,420	6 920v	1	1			Sungei Way (Selangor) Rub. Co. Ltd	....	....	£2 5s. 3d.
			35,000	1	10/-			" " " *Contributory*	....	....	£ 1 7s. 6d.
1904	£60,000	50,000	50,000u	1	1		55% for 1906	Vallambrosa Rubber Co., Ltd	£6.0.0	....	£6 0s. 0d.
								GENERAL			
1894	£5,377,10.0	£4,648.15/-	7,438	12/6	12/6	£814,11.9	10% dividend for 1905	Bells Asbestos Eastern Agency, Ltd	....	....	7.00
1898	$225,000	225,000	4,500	50	50	112,500	15% & 2½% bon. for yr. end. 31-12-06	Fraser & Neave, Ltd	140.00	145.00	141.50
1865	$10,000,000	10,000,000	80,000	125	125	10,000,000a* 11,000,000b* 250,000c*	£1 15s. & bonus of £1 at ex. 2s. 3½d. making $40.80 for 1906	Hongkong & Shanghai Bankg Corptn	....	....	855.00
1905	$2,400,000	2,400,000	18,000	100	....	40,000	7½% for year ending 31-10-06	Howarth Erskine, Ltd	....	170.00	170.00
			6,000	100	....		7% for year ending 31-10-06	" " 7% *Pref*	....	....	120.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-06	Katz Brothers, Ltd. *Deferred*	....	....	135.00
			4,000	100	100		8% " " " " "	" " 8% *Cum. Pref*	....	....	nominal.
1901	$34,000	34,000	3,400	10	10		20% for year ending 31-10-06	Maynard & Co., Ltd	....	....	21.00
1899	$875,000	875,000	6,000	100	100	150,000	5% for year 1906	Riley, Hargreaves & Co., Ltd	107.50	107.50	107.50
			2,750	100	100		7% for year 1906	" " " " 7% *Pref.*	....	110.00	110.00
1903	$600,000	240,000	24,000x	10	10			Singapore Cold Storage Co., Ltd	....	7.50	7.50
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-06	Singapore Dispensary Ltd	....	55.00	55.00
1884	$200,000	200,000	2,000	100	100	35,000	20% for year ending 31-12-05	Straits Ice Co., Ltd	....	150.00	150·00
1890	$500,000	500,000	5,000	100	100	400,000 241,075d*	10% for 1906	Straits Steam Ship Co., Ltd	195.00	....	195.00
1904	$40,000	$30,280	2,535y	10	8			Straits Tobacco Factory, Ltd	....	4.00	4.00
			1,000	10	10			" " " "	....	....	nominal.
1887	$3,000,000	2,500,000	250,000z	10	10	1,000,000 1,087 084e*	10% & 5% bon. ½ yr. end. 30-9-06	Straits Trading Co., Ltd	....	63.00	62.50
1864	$3,700.000	3,700,000	37,000	100	100	1,950,000	$6 for half year ending 31-12-06	Tanjong Pagar Dock Co., Ltd	740.00	....	740.00
								DEBENTURES			
								Howarth Erskine, Ltd. 6% $ 600,000	....	....	3% prem.
								Singapore Municipal 6% 400,000	....	....	20% prem.
								" " 5% 1,878,000	....	....	2% prem.
								" " 4½% 1,600,000	....	5%	5% prem.
								" " 4% 602,900	....	....	2% dis. nom.
								Riley, Hargreaves & Co., Ld. 6% 225,000	....	3%	3% prem.
								Tanjong Pagar. Dock Board 6% 250,000	....	....	3% prem.
								" " " 5% 1,050,000	....	....	par.

a 50,000 unissued
b 2,500 "
c 10,000 "
d 5,100 "
e 22,000 "
f 5,250 "
g 4,800 "
h 10,815 "
i 10,000 "
j 9,500 "
k 12,000 "
l 9,000 "

m 9,000 unissued.
n 2,500 "
o 20,000 "
p 5,000 "
q 2,500 "
r 10,000 "
s 150 "
t 300 "
u 1,645 "
v 8,080 "
w 10,000 "
x 36,000 "

y 465 unissued.
z 50,000 "
a* Special Gold Reserve Fund
b* Silver Reserve Fund.
c* Insurance Fund.
d* Sundry Reserves.
e* Sundry Reserves.
f* 7,500 unissued.
g* 20,000 "
h* 5,000 "
i* 2,500 "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, JUNE 1907

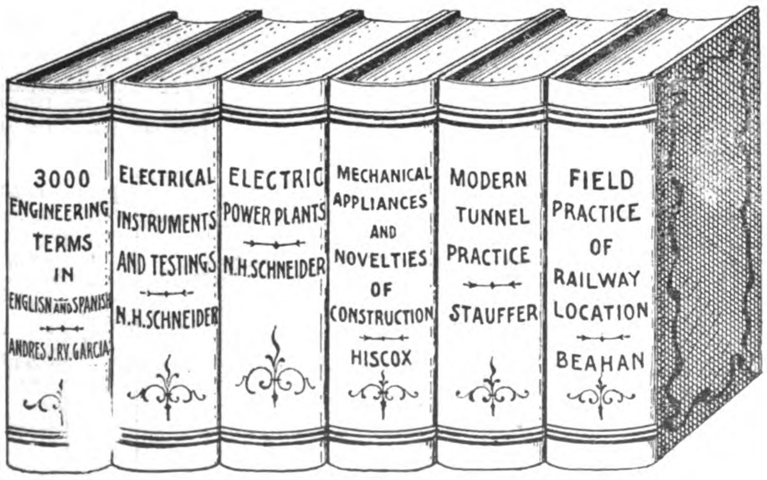
STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVED FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2800	-Y- 10	-Y- 10			31-12-06	8%	for 1 year	10 Sellers.
Club Hotel, Ltd.	185,000	1850	100	100	3,000	-Y- 943.52	31-3-07	7%	for 1 year	80 Sellers.
Grand Hotel, Ltd.	500,000	5000	100	100		-Y- 13,990.77	31-12-06	6%	for ½ year	160 Sellers.
Helm Bros., Ltd.	186,000	3720	50	50	22.500	-Y- 2,916.83	31-12-06	20%	for 1 year	85 Sellers.
Langfeldt & Co., Ltd.	150,000	1500	100	100		Dr. 20.304.15	31-12-06		for ½ year.	45 Buyers.
C. Nickel & Co., Ltd. †	500,000	20000	25	25		1,470.97	31-10-06	16%	for 1 year	41 Bnyers.
Yokohama Engine and Iron Works *	500,000	10000	50	50	50,000	-Y- 16,282.42	31-5-06	35%	for 1 year	90 Sellers.
Oriental Hotel, Ltd., Ordinary }	250,000	3000	50	50	62,285.42		31-8-06	15%	for 1 year	75 Nominal.
Oriental Hotel, Ltd., Preference }		2000	50	50				8%	for 1 year	64 Sales.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10000	100	100			First Year.			105 Sales.

† 285,000 unissued. *-Y- 390,000 issued.

‡ 475,000 unissued. 110,000 unissued.

DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	85 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	106 Nominal.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	110 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	DIVIDEND PER ANNUM.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 95.50 ex int.
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 92.90
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 92.90
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 87.50 ex int.
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 87.50 " "
Imperial 5% Bonds (Goburi)	100	100	5%	March and Sept.	,, 86.00
Imperial Government 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 86.60 ex int.
Kobe Water Works Bonds	100	100	6%	June and Dec.	,, 96.00 " "
Osaka Harbour Bonds	100	100	6%	June and Dec.	,, 96.00 " "
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 96.00 " "
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 99.00 " "
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 100.00
Sanyo Railway Company Debentures (2nd issue)	100	100	6%	April and Oct.	,, 98.00
Tokyo Stock Exchange Company	50	50	40%	June and Dec.	,, 142.00
Hokkaido Colliery (Tanko) Steamship Company Limited	50	50	15%	July and Jan.	,, 112.70
Hoden Petroleum Company, Limited	50	50	30%	April and Oct.	,, 135.00
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 47.20
Tokyo Railway Company Limited	50	50	9%	June and Dec.	,, 70.55
Keihin Electric Railway Company, Limited	50	50	13%	June and Dec.	, 91.60
Hokkaido Hemp Weaving Company, Limited	50	50	13%	July and Jan.	,, 61.50
Kanegafuchi Cotton Spinning Company, Limited	50	50	20%	July and Jan.	,, 114.00
Tokyo Cotton Spinning Company, Limited	50	50	20%	July and Jan.	,, 75.20
Fuji Gassed-Yarn Company, Limited	50	50	25%	July and Jan.	,, 102.50
Nisshin Cotton Spinning Company, Limited	50	12½	—	——	,, 9.10
Fuji Paper Mill Company, Limited	50	50	10%	June and Dec.	,, 52.80
Yokohama Dock Company, Limited	50	33	15%	June and Dec.	,, 67.00
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 115.00
Nippon Sugar Refinery Co., Ltd. (Tokyo)	50	50	20%	June and Dec.	. 83.70
Dai Nippon Beer Brewery Company, Limited	50	50	15%	July and Jan.	,, 108.50
Tokyo Gas Company, Limited	50	50	15%	July and Jan.	,, 96.30
Kirin Brewery Company, Limited	50	50	—		,, 80.00
Tokyo Electric Light Company Limited	50	50	10%	June and Dec.	,, 69.60
Yokohama Electric Light Company, Limited	50	50	15%	July and Jan.	,, 83.00
Osaka Electric Light Company, Limited	50	50	13½%	July and Jan.	, 119.00
Kobe Electric Light Company, Limited	50	50	10%	July and Jan.	,, 85.00



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COMMERCE ENGINEERING FINANCE

VOL. IV. MANILA, P. I., SHANGHAI, AND YOKOHAMA, AUGUST, 1907. No. 3.

THE TEA INDUSTRY IN CHINA

Mr. William H. Ukers, managing editor of the *The Tea and Coffee Trade Journal* published in New York, completed a tour of the Far East recently in the interests of his enterprising journal, the result of which he has confided to the trade. The report of his visit to the principal tea producing centers of China is of special interest and follows:

"I returned to Hongkong from Manila on February 11. Before continuing my trip north along the China coast, I took a run up to Canton, one of the most characteristic of Chinese cities, situated some ninety-five miles up the Chukiang or Pearl River. Canton is said to date back some 300 years before Christ, and since the opening of the place to foreign trade it has been one of the most popular tourist resorts, so distinct, so different from anything and everything else to be seen anywhere is the city of Canton, which can be compared to nothing, unless it be the idea of a human rabbit-warren.

"Canton no longer holds the important place it did in the tea trade. The trade between Canton and London is practically extinct. The exports to London have fallen from 1,170,000 pounds in 1885 to 600,000 pounds in 1905. One cause for the decline is the steadily increasing demand for Pouchong, a scented tea for native consumption. In this form, growers can obtain far more remunerative prices for their holdings than they can for the leaf prepared to meet the London market.

"There are several tea factories in Canton where the tea continues to be made in the approved Chinese fashion. The tea is sent down the river in junks to Hongkong where it is reloaded for shipment abroad.

"Returning to Hongkong, I spent some time in company of Mr. Amos P. Wilder, the U. S. Consul General, who rendered me every possible assistance in my work. I am also indebted to Mr. Stuart J. Fuller, Vice and Deputy Consul General, for assistance rendered.

AT HONGKONG

"Hongkong, you know, is an island situated off the coast of the Kiaung province, near the mouth of the Canton river. It is about eleven miles long and about two to about five miles broad. Its circumference is about 27 miles. The city of Victoria usually referred to as Hongkong, is magnificently situated on the northern shore of the island facing the sheet of water between the island and the mainland, enclosed on all sides by lofty summits and generally considered to be one of the finest and most beautiful harbors in the world. It has an area of ten square miles and with its diversified scenery and varied shipping presents a most animate and imposing spectacle.

"The houses in the city of Victoria are many of them large and handsome, rising tier upon tier from the water's edge to a height of over 400 feet on the face of the peak, while many buildings are visible on the very summit of the hills.

"Seen from the water at night when lamps twinkle from among the trees and houses, the city spreading along the shore for upwards of four miles, it affords a sight not readily forgotten.

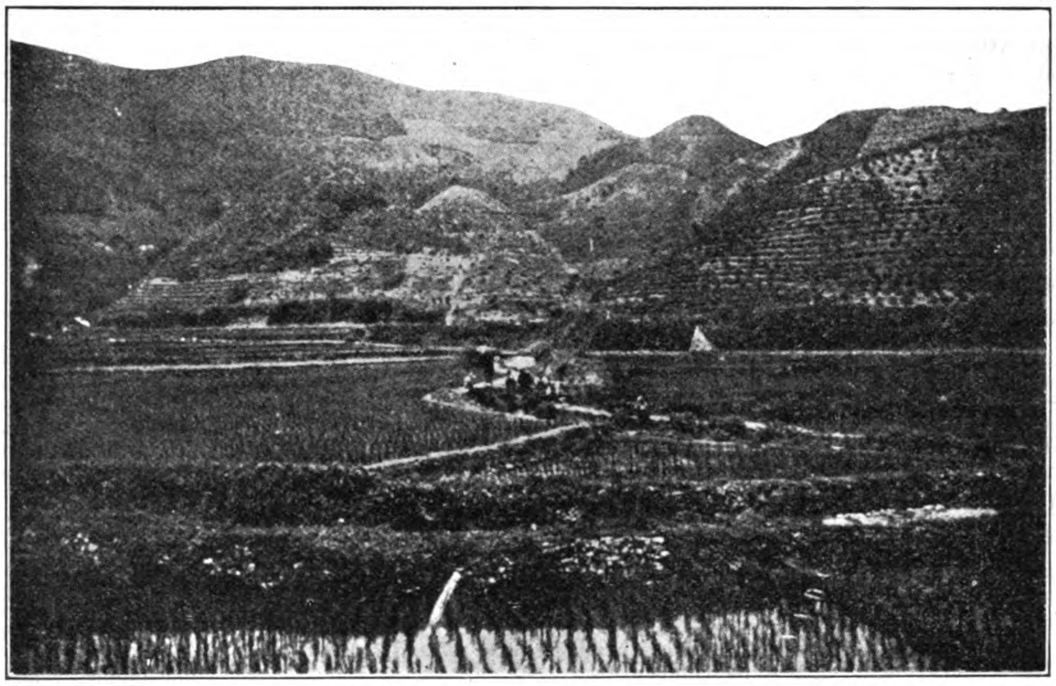
AT SWATOW AND AMOY

"I left Hongkong early on the morning of February 17, on the Masan Maru, a little 1,300 ton boat belonging to the Osaka Shosen Kaisha, which runs a line of boats from Hongkong to Formosa and Japan, touching at the principal Chinese coast towns.

"It is nearly a day's run from Hongkong to Swatow, situate at the mouth of the River Han. Swatow was first thrown open to foreigners by the Treaty of Tientsin. Tea and sugar were formerly the principal exports, but the tea trade in this and other China ports has to a very large extent passed away and the sugar rtade seems to be rapidly following it. Only 3,548 piculs of black tea were exported from Swatow in 1895 and 508 piculs of green tea. I continued on the same steamer to Amoy, arriving there the morning of the day following.

"Amoy was one of the first ports opened to foreign trade before the ratification of the treaty of Tientsin. It is situated on the island of Haimun at the mouth of the Pie-Chi or Dragon river. It has a very good harbor and the tide rises and falls here from fourteen to sixteen feet. Amoy ranks as a third class city. It is considered even for China to be very dirty and its inhabitants are unusually squalid in their habits. It is a curious fact noted by travellers in China that each city visited appears dirtier than the one preceding. I thought no city could be quite as dirty as Canton, but after seeing Swatow I changed my mind. I changed it once again when

(Continued on page 68.)



RICE IN THE CHINESE LOWLANDS AND TEA ON THE HILLSIDES

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

COMMERCE :-: ENGINEERING :-: FINANCE

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HONGKONG SUGAR LEADS

A Japanese contemporary finds a noticeable falling-off in the export of sugar from Japan this year, says the *South China Morning Post*. Our contemporary remarks that the largest market for Japanese sugar abroad is the Yangtze valley, Manchuria and Korea coming second. The Hongkong Sugar Refining Company was hard pressed by the Japanese sugar in China, and has been closely affected since last year. Seeing this, the Hongkong company reduced the price of sugar from 6.45 taels, to 5.85 taels in the summer last year. This had little effect, and the price was further reduced to 5.75 taels, without effect. On the other hand the export of Japanese sugar swelled to an unparalleled extent, the stock of Hongkong sugar at Shanghai this year accumulating to 130,000 bags at one time. Surprised at this state of affairs, the Hongkong company has lowered its price several times since March last, and now it is selling at 5.1 taels and has at last succeeded in beating Japanese sugar. In January the Dairi Sugar Refining Company shipped to Shanghai 22,219 piculs. The figures fell off to 1,350 piculs in February, and none at all was shipped in March. In April the shipment amounted to only 2,025 piculs, and in May 3,430 piculs. The Japan Sugar Refining Company stopped shipments entirely until May, when it shipped 3,400 piculs. The following figures show the export of sugar to China, Manchuria, and Korea during the first five months of this year:—

	Dairi Refining Co. piculs.	Tokyo Refining Co. piculs.	Osaka Refining Co. piculs.
January	25,044	2,569	4,670
February	7,465	45,148	3,600
March	8,310	6,930	1,420
April	7,148	4,840	3,900
May	8,075	——	2,892

The export during the above five months was not more than 132,000 piculs, a remarkable falling-off as compared with the corresponding period of last year. On the other hand, Hongkong sugar has been selling rapidly. The stock at Shanghai, which at one time amounted to 130,000 bags, is now reduced to only 30,000 bags. When this fact is taken into consideration, the depression of the export of Japanese sugar to China cannot be attributed to the depression of trade in the Yangtze valley in consequence of the famine. Japanese sugar, it must be confessed, has been ousted by Hongkong sugar. The sugar exporters, however, are optimistic. They maintain that there are signs of trade revival in China in view of the promising crops this year. The season of business activity is about to set in, and they are confident of seeing a great increase in the business of sugar export after next month. Our contemporary, however, doubts whether these expectations can be realized, as the Hongkong company will assuredly keep up its competition.

The sugar season in Formosa is now almost over, says the "Asahi," but the total output has not reached 100,000,000 kin, as estimated. The total was 92,667,500 kin, showing a decrease of about 18,000,000 on the figures for last year. This decrease is due to the failure of the cane-crop in consequence of a drought which prevailed during the planting season. Up to the end of last month, 90,563,802 kin of sugar had been sold.

GRANTING CREDIT TO JAPANESE FIRMS

Consul-General H. B. Miller, of Yokohama, transmits the following extract from a Japanese publication, which calls attention to the care necessary in giving credit to unknown firms in Japan:

"The number of applications received by Japanese chambers of commerce or foreign consulates in Japan from foreign merchants asking for assistance in opening direct import or export business with Japanese merchants or manufacturers have largely increased of late. On the authority of an official connected with commerce and industry, contemporaries observe that some of the Japanese firms recommended have proved to be unsound in their standing. A certain merchant of Osaka, who had been introduced to a German firm, placed a large order for champagne with a firm in Germany, and having imported the goods, closed the office. It is essential, concludes the official, to exercise the utmost care in recommending a Japanese merchant to a foreign firm in order to maintain the reputation and credit of the Empire."

HOW AN INFANT SALTED VANCOUVER

In the early part of June no little excitement was caused by a most interesting story circulated by the daily press of Vancouver, and at once telegraphed broadcast throughout the land, to the effect that alluvial gold in paying quantities had been discovered in the east end of the Terminal City. The details were comprehensive, names of the fortunate finders were given, and public expectation of a new Klondike on Burrard Inlet was raised to fever heat. Developments were anxiously looked for. They came. We will let our contemporary, the Vancouver *Province*, tell the sad story in its own inimitable way:

"W. J. Haddock, partner in the firm of Parsons, Haddock & Co., produce and commission merchants, is part owner of a mischievous nephew. Three years ago Mr. Haddock came down from the Cariboo district after spending several seasons in that country. He took rooms with relatives who live at the corner of Keefer street and Dunlevy avenue. Among the treasures which Mr. Haddock brought from Cariboo was a little sack of nuggets worth a hundred dollars. One day Mr. Haddock's nephew, aged about 5, was left alone in the house. He selected as his particular plaything this little sack of nuggets. When his elders arrived home, the hopeful was found playing in the ditch at the corner of the streets mentioned. In his hand was the sack, but the nuggets! What became of those nuggets? Last week the entire east end of Vancouver was agitated by the story of the finding of a number of nuggets in this identical spot. Painful though it may be, the truth must be told.

"It's a sad life we live, all right, all right. Especially when we have to knock the town."—*B. C. Mining Exchange.*

MOSQUITOES AND BEDBUGS COMBINE

Dr. W. J. Goodhue, medical superintendent of the leper settlement at Molokai, Hawaii, who has devoted many years to the study of leprosy, clinically, bacteriologically and chemically, has discovered the germ of leprosy in the mosquito and the bedbug.

GOLD BULLION FROM KOREA

During the first half of this year, 581 kwan 497 momme of gold bullion was imported from Korea to Japan through the Osaka branch of the First Bank. The following table will show the quantity of bullion imported and the amount of gold coins minted during last year and this year:—

	Imported. Kwan.	Coined. Yen
First half this year	581,497	1,799,088
Second half last year	592,659	1,767,672
First half last year	606,607	1,676,915

SUGAR TRUST PREPARES FOR WAR

The sugar barons are rallying their forces for the battle against Philippine sugar at the next session of congress, and the usual superabundance of misleading literature is being distributed among the sugar planters and the agriculturalists for the purpose of prejudicing them against any legislation favorable to its importation. While admitting that it is impossible to produce sufficient sugar in the United States to supply the demand and that the demand is increasing each succeeding year at a greater pace than the production, the trust press continues as inconsistent as it is determined to force the American consumer to purchase his sugar at a price dictated by the trust. The quantity of sugar imported from foreign countries, exclusive of Cuba, in 1906, was, approximately, 600,000 tons. Of this but 13,000 tons were supplied by the Philippines

If we are to judge from past experience the shortage will increase with each succeeding year so that the Philippines could in all fairness be permitted to ship into the United States, free of duty, 500,000 tons annually without discouraging the beet sugar industry or indeed any interest but the grasping Trust. The natural law of supply and demand would rule, however, instead of the dictation of a monopoly protected and encouraged by a tariff wall.

Even with the tariff removed it would be impossible for the Philippines to supply the United States with the necessary quantity of sugar to make up the annual shortage within the next fifty years, if indeed the industry in the islands could ever be relied upon for half that amount.

When the Philippines sugar bill was relegated to its living tomb in the committee room the opponents of the measure had practically admitted all the points in the arguments of the Philippine delegation with the exception of the impossibility of the Philippines flooding the United States with sugar should free entry be granted. It might have been an easy matter to arrange a compromise on a basis of the removal of the duty on a limited amount of sugar annually at that time but the administration, believing that the fight was won, refused to consider such a proposal, and when the Trust discovered how very easy it was to smother all legislation in committee later, refused to discuss the subject further.

While it may be natural to a large constituency in the United States to believe that the Philippines would flood the American market with sugar and destroy the home industry those familiar with conditions in the islands are satisfied that such a fear is groundless. However, it may be that in order to allay the suspicion that the friends of Philippine sugar are conspiring to ruin the industry in the United States, a compromise may be effected at the next session of congress.

There is reason to believe that in the coming battle the sugar trust will find the manufacturing interests arrayed with the friends of Philippine sugar. This was not the case during the former engagement. During the last year the attention of the manufacturers has been directed to the promising market in the Philippines under more favorable tariff regulations governing the importation of Philippine products, and from all reports they have expressed themselves in favor of removing the barriers altogether or on a limited quantity to a degree consistent with the preservation of the industry in the homeland.

Of interest at this time is the attitude of the Trust press. Arrogant as ever, more inconsistent if possible than ever before, and devoid of the element of fairness the *New Orleans Times Democrat* sounds the call to arms. That paper says:

"If Secretary Taft goes to the Philippines, as he proposes to do, in spite of the announced desire of the President to have him take the stump in Ohio, where Foraker is attacking the administration, it will mean a reopening of the old Philippine tariff fight. The Louisiana sugar planters, the tobacco growers of Kentucky and Virginia, and the fruit growers of California and other states will do well to prepare for this —for a vigorous campaign, backed by all the influence of the President and designed to throw open our ports to Philippine products free or on a minimum duty.

"It required a supreme effort to beat the bill before the last Congress; and the Louisiana members, fighting in the interest of the sugar and rice growers of the state, played a leading part in the struggle, and did much to assure victory. They and the planters will do well to prepare for a second attack when Taft returns from the Philippines with new stories of the distress among the Filipinos and the necessity of our doing something for their relief. It is true that all the arguments are against letting Philippine products into this country without the payment of duty; that it would be a gross outrage to injure American farmers in the interest of a people who hate us, and whom we ought to get rid of as soon as possible; but the fact that those who will suffer from this injustice dwell mainly in the South and that the constituents of a majority of the congressmen, and especially those who control affairs at Washington, will not be affected by Filipino competition is a political weakness that it would be well to recognize. If Secretary Taft comes back from the Philippines asking for a new tariff bill, and if the President pledges his support to that measure, it will require an active fight to beat it. It is well for Louisiana to be warned on this point, to appreciate the danger. It can, if well organized, and if this same determined, intelligent, and well planned campaign be made this time."

Whatever may be the outcome of the fight, it promises to be a battle royal. And the Philippine exiles have the consolation, no matter what may be the outcome, that their campaign has been carried on in a spirit of fairness, desiring always to further the interests of the Philippines but not at the expense of any American industry or of the American people.

HORSELESS VEHICLES FOR HORSELESS AREAS

Commenting on a lecture delivered by Mr. O. P. Austin, chief of the bureau of statistics of the department of commerce of the United States, before the National Geographical Society at Washington, the *American Exporter* says:

"The dependence of the tropics and the Orient upon these crude methods of transportation for their products—a dependence due to the absence of that animal which has so aided in developing the temperate zones, the horse—is, in Mr. Austin's opinion, one of the primary causes of the slow development of the tropics, where the horse cannot thrive because of climatic conditions, and of the Orient, where land cannot, owing to the density of population, be spared for production of food for his sustenance.

"This problem of the development of the tropics and the Orient, which had been so long delayed by reason, in part at least, of the absence of the horse for transportation between the point of production and the common carrier, might now, in Mr. Austin's opinion, be solved by the substitution of the horseless freight carrier of the automobile type for the crude methods which have prevailed in those sections of the world in which the horse is not available.

"Of the approximately 100,000,000 horses known to exist in the world, he said, 80,000,000 or four-fifths of the entire number, are found in the temperate zone, and nearly all among Occidental people; while the remaining 20,000,000, scattered through the tropics, are largely employed in the service of temperate zone visitors or residents, and are but feeble representatives of that noble animal as he is known to the people of Europe or America. In the United States and Canada we have approximately 1 horse for every 3½ persons; in South America, 1 for every 7; in Mexico, 1 for every 12; in Japan, 1 for every 33; in Turkey, 1 for every 40; in the Philippine Islands, 1 for every 50; in Africa, 1 for every 150; in India, 1 for every 200, while in southern China, for which no statistics are available, the number is probably even less in proportion to population than in Africa or India. The comparative absence of the horse in the tropics is due chiefly to climatic conditions, and in the temperate zone Orient to the fact that the density of population prohibits the utilization of land for the production of his food. In his place we have, therefore, scattered through the tropical countries of the world approximately 3,000,000 camels, 10,000,000 donkeys and 20,000,000 buffaloes or caribou; while everywhere that horses are not available the patient ox, whether of the type known to us or the humped variety of the Orient, is the substitute. With the scarcity of animal power in the tropics and the Orient man has devised many methods for travel and transportation, and in many cases has perforce put his own shoulder to the wheel or his own neck under the yoke and made himself a burden bearer and the transporter of not only merchandise but in some cases of his fellow man. No one who has visited the tropics and the Orient can fail to realize the great disadvantage under which tropical and oriental man has labored in his attempts to develop intercommunication and exchange of products, and the great benefits to him and to science and to commerce which would come from a satisfactory device which would do for the tropics and the Orient what the horse has done for the temperate zone and the Occident.

"The possibility and practicability of applying the self-propelling vehicle to the transportation of merchandise and people in deserts, in the tropics and the Orient has already suggested itself, and the experiments made have already assured success. In the deserts of New Mexico and Arizona motors are successfully carrying freights in a temperature of from 120 to 140 in the sun, where, owing to the extreme heat, horses or mules can only be used at night. In Nevada motor trucks are now performing the work of 30 horses each, carrying freights over 100 miles of mountain roads. In California motor cars are carrying over dirt roads in the mountain regions as much ore at each trip as would require 100 pack horses for its transportation. In Porto Rico a line of three motor vehicles, established by an enterprising American to carry passengers and mails, performed the work for which more than a score of vehicles and over 100 horses had been required. Numbers of American motor vehicles for carrying heavy loads of passengers have been put on the roads of Cuba and Santo Domingo with success, and more are being ordered. In Honduras American motor trucks are conveying minerals to the seaboard from the mines 100 miles inland, a single motor performing in one day as much work as could be accomplished by 100 mules in the same time. In South America the horseless vehicle is carrying passengers and freights to the inland cities over roads where only the donkey was utilized, and doing so at an enormous saving of time and expense. United States Consul Michael reports that the Indian Government is considering the desirability of utilizing motor transport wagons for moving the products of the out-of-the-way districts to market. Special Agent Crist reports to the Department of Commerce and Labor a rapidly increasing use of the horseless vehicle in South Africa, especially in the mining regions; that nearly a million dollars' worth of these vehicles were imported in 1906, and that the cost of constructing motor roads is only about one-eighth as much as that of railways. In the Congo the Belgian Government is constructing hundreds of miles of roads for the use of the motor, which is to be applied to the transportation of freight in that section. In Japan the experiments with the horseless vehicles have been so successful that a company has recently been organized in that country, with a capital of 10,000,000 yen, for the purpose of building and operating vehicles for a general transportation service in Tokyo and thence to the surrounding towns."

JAVA'S COFFEE CROP REDUCED

According to a recent telegram to The Hague Government from the governor-general of Netherlands-India, the Government's Java coffee crop for this year is estimated at 39,000 piculs (picul=133⅓ pounds). In the colonial budget this crop was estimated by the minister at 125,100 piculs, but at the end of January last the minister was advised that the estimate had to be revised and to be reduced by 86,000 piculs. The reports from private estates are also very disappointing, and the exports of Java coffee generally promise to be very small this year. It is not yet known whether the Government will reduce the number of auctions or whether a smaller quantity will be offered at each sale. At all events, the reduction of revenue, calculated at 0.33 florin (florin=40.2 cents) per picul, will amount to about 280,000 florins.

THE TEA INDUSTRY IN CHINA

(Continued from page 65)

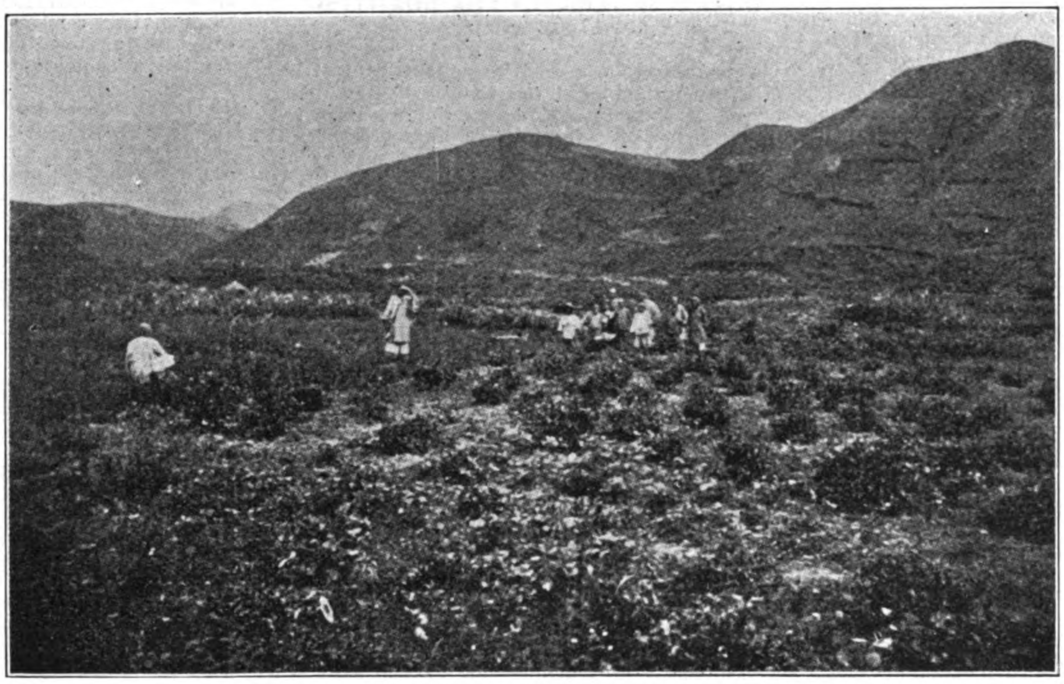
I saw Amoy. I was destined to change it many more times before I had finished my tour of China.

"On the western side of the harbor of Amoy is located the island of Kulangsu. It contains the residence of nearly all the foreigners, though most of the foreign business is transacted on the Amoy side. Once upon a time the tea trade made Amoy famous around the world. To-day the staple export is, not tea, but humanity, the development of the coolie traffic to the Malay archipelago having taken first place. In former times, ere the glory of Amoy had departed, the tea exports included the local product as well as the superior blends brought over from Formosa, but, owing largely to the deterioration of the China teas from this section and the indifference of the grower and the condition of the foreign market recently, green tea has long since ceased to be exported. Mr. Cecil A. V. Bowra, Commissioner of Customs, makes a fairly safe prophecy when he remarks that it only requires the development of Kelung harbor (in Formosa) to cause the total disappearance of the foreign tea merchant of Amoy. Before the Japanese obtained possession of Formosa, the Formosan teas were settled and warehoused in Amoy, whence they were shipped to the foreign markets. Now no Formosan tea is settled in Amoy and, with Kelung still unimproved to any considerable extent, quite 50 per cent of the Formosan product is being shipped direct to America from Kelung, so that at no distant date the foreign tea merchant of Amoy will, in all probability, lose his occupation and then, in the words of the commissioner, 'the row of quaint, rambling old hongs on the Amoy side and many picturesque residences on Kulangsu will be offering for the occupation of the wealthy returned emigrant or the missionary school.'

"During the year 1905, 584,680 half chests of Formosan tea were shipped to the United States. Of this amount 55 per cent was shipped from Kelung, a significant change from the days when Amoy held the monopoly of shipment. The total export of tea from Amoy in 1905 was nearly 6,762 piculs. At Amoy I was unfortunate in finding Mr. Henry L. Paddock, United States Consul and son of the Paddock of the Jones-Paddock Company of San Francisco, away on a leave of absence. Mr. Rae Hanna, the vice-Consul, was in charge, however, and he rendered me every possible assistance.

"While in Amoy I learned that G. H. Macy & Co. had recently given up their offices there and had removed to Formosa. Mr. F. B. Marshall of Tait & Co., tea merchants, who formerly bought by sample at Amoy, now goes to Taipei, the principal tea market at Formosa, to buy. Before leaving Amoy I also had a pleasant chat with Mr. D. MacHaffie, agent for Jardine Matheson & Co. From Amoy I made a side trip to Formosa to look into the Formosan tea situation. This trip will form part of my next letter, which will deal with tea in Formosa and Japan.

"Returning to Amoy, I left by the steamer *Haiching* on February 25 for Foochow. The boat sailed about seven o'clock in the evening, and about nine the next morning we were entering the Min River. In sailing up the Min River from the sea, vessels have to leave the wide stream and enter what is called the Kimpat Pass, which is barely half a mile across, and, being enclosed as it is by bold rocky walls, it presents a very striking appearance. Presently the course of the river lies through the pass of Min-Ngan, which is still narrower, and, with its towering cliffs, surmounted by fortifications and cultivated terraces, is extremely picturesque and has been compared to some of the scenes on the Rhine.



CHINA TEA FIELD IN THE YANGTZE VALLEY

"Foreign vessels, with the exception of all those of light draught, are compelled to anchor at Pagoda Island, and from here smaller boats must be taken to the town of Foochow, nine miles further up the river, and distant thirty-four miles from the sea.

"The attention of foreigners was early attracted to Foochow as a likely place where commercial intercourse could be profitably carried on in the shipment of Bohea tea, which is grown largely in the locality.

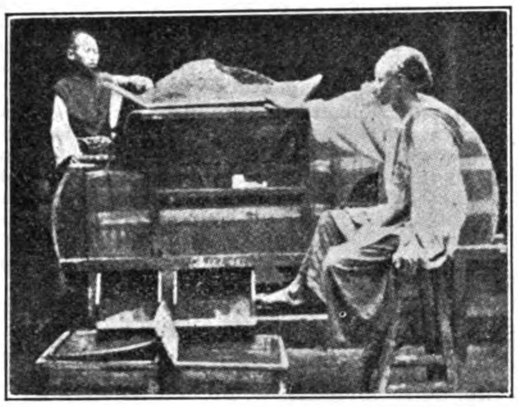
"I spent four days at Foochow and I cannot say that I regard the experience as one I care to repeat. The weather conditions were anything but ideal, and the city presents little of interest to any one who has previously inspected any of the Chinese towns.

"I am indebted to Dr. Samuel L. Gracey, the United States Consul at Foochow, and his vice-deputy, Edward C. Baker, for numerous courtesies shown me and considerable assistance rendered in my search for accurate information tending to throw light upon the real cause of the decline of the Foochow tea trade, and I am also under similar obligations to John C. Oswald, of Bathgate & Co.; H. H. Dulling, of Dodwell & Co.; Thomas Gittins, of John Gittins & Co.; F. P. Lachlan, of Jardine Matheson & Co.; P. P. Martzinkevich, agent for the Russian tea factory of Molchanoff, Pechatnoff & Co., and H. S. Brand, of H. S. Brand & Co., public tea inspectors.

"E. B. Drew, Commissioner of Customs at Foochow, in his report for 1905-1906, said: 'It is certain that the Foochow Oolong in quality, as a whole, cannot compete with Formosa Oolongs. There prevails a formidable consensus of expert opinion that our teas are only wanted when they can be bought cheaply enough to bring down the prices of Indian and Ceylon blends, and that demand for them for their own sake will soon cease; in other words, it is only by cutting down costs that China generally can compete with other centers of production. One of the merchants who has kindly aided me in preparing this report observes: 'Within twenty years a valuable trade has dwindled to the most meager dimensions. Thousands of acres must have gone out of cultivation and it is puzzling how such a collapse could have taken place with so little outward effect on the prosperity of producing districts. The truth seems to be that the actual producers have always been small men, who in the most flourishing days of trade never got their proper benefit out of it. It was the rich financing Cantonese tea hongs who made nearly all the profit. The former producer, therefore, now turns his attention to agriculture of various kinds, and allows his tea shrubs to grow wild with comparative indifference. In one or two districts the falling away in foreign trade has been to some extent counterbalanced by the great increase in the native trade between Foochow and the north of China, but this does not affect the large up-country districts.'

"To a superficial observer it would seem as if the trade in fine teas from Foochow is being killed by starvation prices. Most of the foreign buyers in Foochow agree that the New York importers seem to have no souls for anything beyond tea at the lowest prices, whether Congous or Oolongs. A New York firm recently wrote to a Foochow house: 'We understand you quote the standards mentioned at an average price of 10¼ c.i.f. We should not be interested in these at over 7¾ c.i.f., and even at this price would not wish to include any teas that cannot pass the government standard.' This limit of 7¾ per pound c.i.f. is less than the

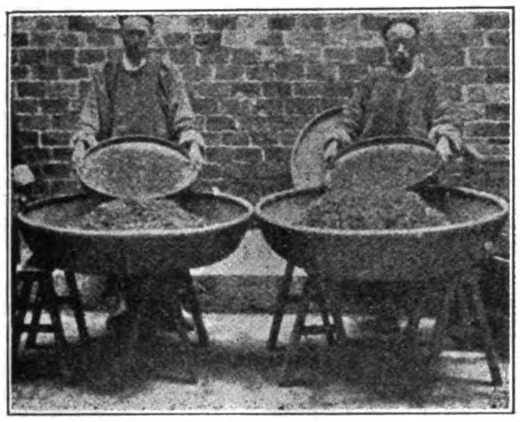
cost of production, packing, export duty, freight, etc., as was claerly proven to me upon investigation. Each year the Oolong tea men are curtailing their output; some have given it up altogether. In the season of 1905-1906 the total production of Foochow-Oolong was 103,940 half-chests. This season



SIFTING TEA BY MACHINERY

(1906-1907) the total production is 54,500 half-chests, say a shrinkage of 47½ per cent. "The losses this season are heavy. Three of the Oolong hongs express their intention of not doing busines next season. It is estimated that the Oolong crop for next season will not exceed from 25,000 to 30,000 half-chests.

"The records of the Foochow Chamber of Commerce show that the total exports of tea to the United States and Canada have fallen from 11,250,000 pounds in the season of 1902-03 to 7,000,000 pounds in the season of 1905-06. In 1880 the London market took 62,500,000 pounds and Australia and New Zealand 20,000,000 pounds of Foochow teas. In the season of 1905-06 only 9,000,000 pounds were shipped to London, and the Australian exports had fallen off to 685,000 pounds. In no other tea ports are the evidences of the declining tea trade so marked as here in Foochow. The foreign buyers, while they are ready to attribute much of the loss to the growing trade in India and Ceylon teas, still find it hard to understand that much of the loss could have been avoided, that the market might even yet be saved by intelligently directed advertising in the consuming markets. All they seem able to grasp is the fact that the London and New York importers are not buying what they did, and that when they do buy they are willing to pay only



CHINESE SIFTING TEA BY HAND

very low prices. They don't seem to understand that the reason why the importers are taking less China tea each year is directly due to the increasing demand for India and Ceylon teas, owing to the activity of the India and Ceylon tea people in bringing their teas prominently before the American and British public. I found it hard to get any of the Chinese tea merchants away from their settled convictions that the mere unwillingness on the part of the importers in London and New York to pay higher prices was alone to blame. The idea that the India and Ceylon tea people were getting the American and English markets away from the China tea merchants by advertising seemed to be very hard for them to understand. The proposition would seem to be a very simple one to any one outside of China. Supposing that China tea was being advertised like India and Ceylon teas, there would follow a freshening of the demand from the consumer. This would react upon the importer and again upon the foreign tea buyer in China, and so on all along the line down to the Chinese tea grower—and then better prices and more business.

"Probably long residence in the Far East tends to narrow one's horizon of thought; certainly the majority of Chinese tea merchants with whom I talked seemed to have utterly lost sight of the fact that in these modern twentieth century days the selling end of a business is quite as important as the buying end—if, indeed, it is not more so. The tea business as it has been conducted in China in the last century is most certainly a failure in this century. Blinding one's self to the facts in the case is not going to better the situation any.

THE PARIS OF THE FAR EAST

"I left Foochow by the steamer *Fung Shun*, 800 tons, one of the Chinese Merchants' Line

CHINESE BUYING SUNDRIED TEA

boats, plying between Foochow and Shanghai. This was my first experience with an essentially Chinese steamboat, and it proved interesting in many ways. The journey up the Chinese coast is a particularly tempestuous one at this season of the year, although it only takes about two days. At two o'clock on the afternoon of March 5, the boat anchored off Shanghai. The town is frequently referred to as the 'Paris of the Far East'—this for the reason that it has such a cosmopolitan atmosphere and so much of wealth and feminine beauty are to be found within its borders. The town is situated in the alluvial peninsula formed between the main mouth of the Yangtze and Hangchow Bay and at the junction of the Hwang Pu River and the ancient Woo Sung, the latter now reduced to the dimensions of an ordinary tidal creek.

"All the principal foreign powers have their concessions at Shanghai and govern their settlements according to their own particular ideas. It is only necessary to cross the street in Shanghai to step out of England into France. There are beautiful streets laid out at right angles, and a famous Bund along the waterfront, which forms a favorite drive and promenade for the wealth and fashion of Shanghai; beautiful public gardens, sumptuous hotels, fashionable clubs and behind this all the native city, with the usual combination of impassable streets and Chinese filth. The approach to Shanghai rather suggests some continental or American river city. All descriptions of manufacturing plants line the waterfront and the water itself is made unusually picturesque by the presence of English, American, German, Austrian, French, and Italian men-of-war, cruisers, gunboats, river steamers, small passenger boats, tugs dragging huge native sailboats, freighters winding their way through clusters of Chinese junks, while the omnipresent *sampan* has hairbreath escapes on every side. The grotesque appearance of the *sampan* is accentuated by

WILLOW PATTERN TEA HOUSE AT SHANGHAI

huge, bulging eyes painted on both sides of the prow. Should you ask a Chinaman the meaning of these painted eyes, he will, no doubt, answer you in 'pidjin English,' 'No got eyes, how can see? No can see, how can walkee?'

"In so far as the tea trade is concerned, Shanghai is principally important because it forms the headquarters of many of the big tea exporting hongs and also is a point for reshipping all the teas from the Yangtze Valley ports. I spent several days in the city, calling upon some of the leading houses in the trade and subsequently made a trip up the Yellow Sea to Tientsin and Peking, returning by rail and steamboat to Shanghai by way of Hankow.

"In Shanghai I called upon Mr. Oscar Halben, whom I mentioned having met on the *Prinz Heinrich* last August while en route from Naples to Aden. Mr. Halben is with Max Mittag, whom I also had the pleasure of meeting, and who conducts one of the most flourishing commission businesses in the Far East. I also met Mr. J. F. Seaman, James N. Jameson and W. P. Lambe, of Wisner & Co., the well-known tea merchants. Mr. Lambe is a brother of Mr. H. Lambe, tea expert at Soekaboeme, Java.

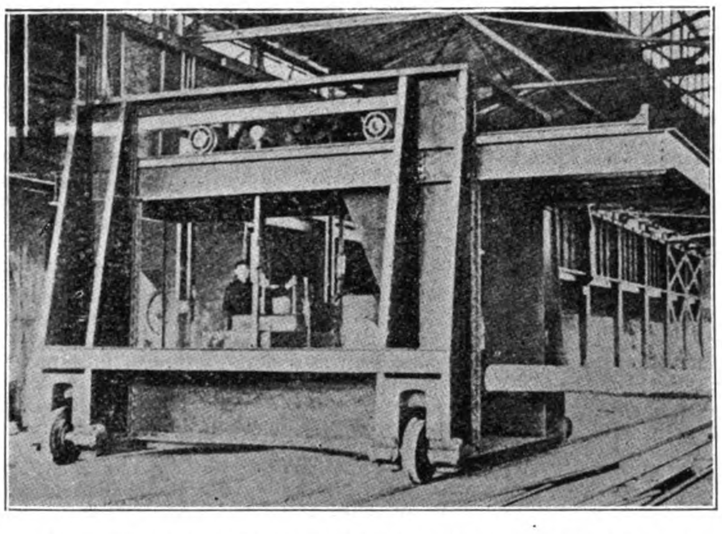
"In Shanghai I learned of the recent organization of the China Tea Association, with an office at 98 Great Tower Street, London,

CHINESE SORTING TEA

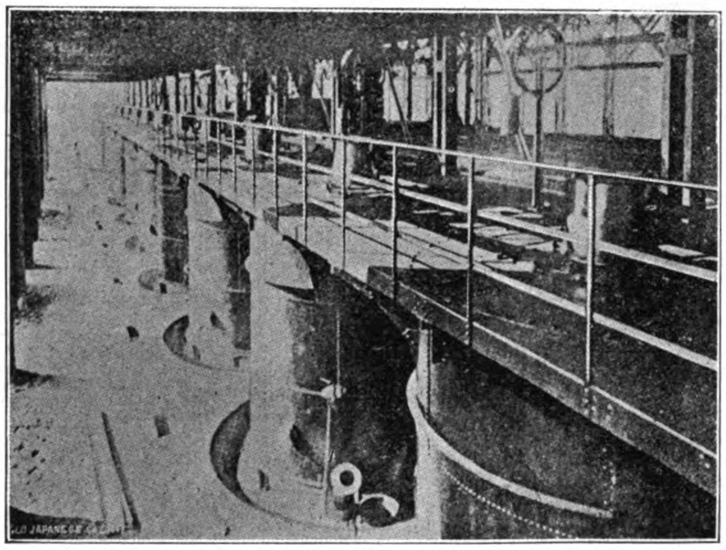
E. C. This association is designed to help revive the declining Chinese tea trade. While I was in Shanghai there was very little known of it there, except that the general plan and scope was to try and do for China tea what is even now being done for Ceylon and India teas. Indeed, the slogan of the organization, as outlined by a circular

recently issued, is: 'Look what has been done for Ceylon and India tea, and do likewise.' Details concerning this tea association will be found in another column.

"The steamer which carried me from Shanghai to Chingwangta was named the *Kaiping*, and is one of the boats of the Chinese Engineering and Mining Company, running regularly between Shanghai and Chingwangta. Except during the open season of the year it is impossible for boats to run up the Pei Ho River to Tientsin and so, during the winter season, the boats running to Chingwangta carry most of the passengers for Tientsin and points in northern China. The harbor of Chingwangta is practically ice-free, and, under the auspices of the Chinese Engineering and Mining Company, it is being made into a safe deep-water harbor, giving access in all weathers to ocean-going steamers. Chingwangta is on the Gulf of Pechili and is considerably north of Tientsin, with which it is connected by railway. The trip to Chingwangta took three days, and, allowing a day's stop at Tientsin, I arrived at Peking on the afternoon of March 11.



WELLMAN ELECTRIC CHARGING MACHINE INSTALLED IN JAPAN GOVERNMENT STEEL WORKS



GAS PRODUCERS AT THE WAKAMATSU GOVERNMENT STEEL WORKS

AT PEKING

"Peking, as probably many of my readers know, was formerly the northern capital of China only, but it has long been really *the* metropolis of the Central Kingdom. It is situated on a sandy plain, thirteen miles southwest of the Pei Ho River and about 110 miles from its mouth, being on a similar parallel of latitude as Philadelphia and Naples. It is a most interesting city to the tourist, but my object in paying it a visit was to call upon Sir Robert Hart, the Inspector General of the Chinese Imperial Maritime Customs, and several of the Chinese governmental officials whom I felt might be of use to me in getting at the real facts in the case of the declining tea trade. I was most courteously received by Sir Robert Hart, who was very much interested in learning of the American tea situation and who was good enough to express himself as highly pleased with the American point of view, which I presented to him. He pointed out that some twenty years ago he had sounded a note of warning to the Chinese Government on the subject of tea and at that time he suggested certain remedies which, unfortunately, were never adopted. Sir Robert Hart is undoubtedly the best informed man on things Chinese living in China to-day. What he has accomplished in the interests of the Imperial Maritime Customs is a never ending source of wonder and admiration among business men and diplomatists of all nations.

"I also received considerable assistance from E. T. Williams, the Chinese Secretary of the United States Legation at Peking. Mr. W. W. Rockhill, our Minister to Peking, also evinced the liveliest interest in my mission.

"I called one morning by appointment upon His Excellency Tong Shao I, formerly Assistant Minister of the Department of Commerce and now Vice-President of the Foreign Office, Associate High Commissioner of Customs and Vice-President of the Board of Communications. His Excellency Tong was educated at Columbia University, New York, and is certainly one of the most enlightened and distinguished officials of the new China. I spent a very pleasant two hours in his company and gained a very good insight into the situation in China in so far as it affects trade with America and England. His Excellency Tong showed the most cordial interest in the tea situation in America and thanked me most heartily for all that I was able to tell him pertaining to the same.

AT HANKOW

"I left Peking on the French Railway, which runs through *trains de luxe* from Peking to Hankow every Wednesday evening. This is a corridor train, with sleeping compartments and dining-car, and makes the run to Hankow, a distance of 700 miles, in thirty-six hours. During the last part of the journey the train ran into a regular old-fashioned New York snowstorm, and when I arrived at Hankow, about ten o'clock in the morning of March 15, I found the streets covered with a heavy fall of snow.

"Of course, I was much too early for the opening of the tea season, and found it a cause for regret that I was unable to delay my departure until the foreign buyers had come back to town.

"Hankow is situated on the River Han at the point where it enters the Yangtze and is distant from Shanghai about 600 miles. It is the center of the northern China tea districts and tea is the staple export. Some of the best-known houses in the trade have offices and godowns here, and several brick tea factories owned by Russians are located in the settlement.

"Hankow has a remarkable Bund, which pushes Shanghai hard for first place. It extends along the river for several miles. The section of the town occupied by the foreign settlement is well laid out, the roads being broad and all lined with well grown trees.

"The trade in tea at Hankow and the other Yangtze valley ports shows less falling off than other tea centers in China and yet the record from 1880 to 1905 shows a loss of 47%. The business with Russia seems to be increasing. The exports to the United States have increased in a more or less up and down sort of way from 12,000,000 pounds in 1878 to 19,000,000 in 1905. It is estimated that two-thirds of the tea exported from Hankow now goes to Russia. The total exports of tea in 1905 were 12,779,222 piculs.

"In the Chinese native city, I called upon Wei Tsze Fung, chairman of one of the important Hankow tea guilds. I was shown over the tea guild hall by Mr. Wei's son, Wei Wyn Sam, and afterwards entertained by the elder Wei at his home. Before leaving Hankow I met Mr. Ross Reed, of the Hankow *Daily News*, one of the best English newspapers published in China.

"I started on my trip down the Yangtze Kiang by the N. D. L. *Meishun* on the evening of March 15. The trip was full of interest. This broad, deep river at times suggests the Rhine, and again the Hudson or the Mississippi. Along the shore for miles and miles the rice (paddy) fields are to be seen running down to the water and behind these, up to the snowcapped hills, stretch the fields of tea.

BRICK TEA MAKING

"About noon of the first day I arrived at Kiukiang, which is well known to the trade because of the *keemuns* and *ningchows* which come from this district. There is also considerable brick tea manufactured at Kiukiang. The process of brick tea manufacture may be briefly noted. Usually three gradings of tea are employed for each brick. The dust is moistened by steam, after having been placed in a mold. Each mold has a layer of the finest or medium tea at the top and bottom, with a coarser grade in between. It is subjected to a pressure, applied by steam power, varying from 12 tons to 28 tons to the square inch. This pressure is applied to the whole surface of each brick. It is only applied for a second or two, when the mold is immediately locked with wedges and kept so for about two hours. The bricks weigh about 2½ pounds each and are about 7×6× inch in size. They require about

"I arrived back in Shanghai on March 18, and to-day I am leaving for Japan.

TEA CULTURE AND MANUFACTURE

"Before closing this letter I might say a few words about tea cultivation and manufacture in China. The subject is far too large to dispose of in the short space remaining, but I hope at a later time to discuss it more fully.

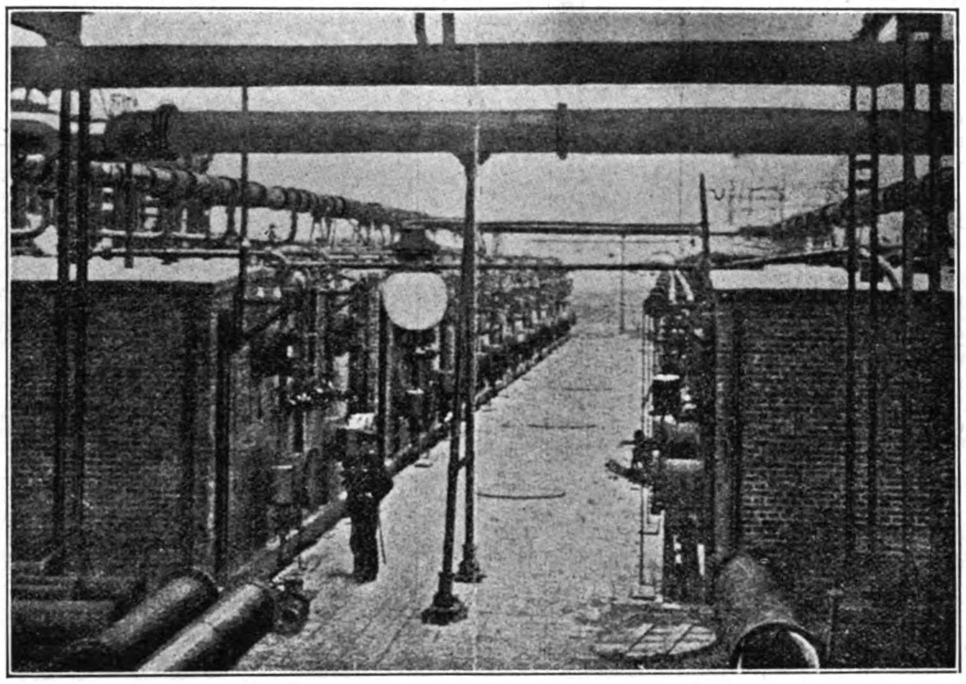
Generally speaking, the tea is grown by small Chinese farmers who may only cultivate a few bushes around the house in which they live. Others have more extensive gardens, but for the most part the patches are extremely small. After the tea is plucked it is generally stretched out in the sun on

JAPANESE GOVERNMENT STEEL WORKS

People outside of Japan who have interest in knowing what the Japanese Government is doing in the way of developing industries of its own will be surprised to know the extent and importance of the Japanese Government steel works, which have cost the mikado something like $10,000,000, says the New York *Commercial*.

The area of the works is about 330 acres, including some 82 acres of ground recently purchased for the purpose of enlargement, and not yet built upon. The works are quite close to Wakamatsu, the chief port for the export of Kyushu coal and about nine miles west of Moji, the well-known coaling port on the Shimonoseki Straits, and northern terminus of the Kyusho Railway. The position was chosen largely on account of its proximity to the Chikuho coal fields, by far the most extensive coal-producing district at present known in Japan. The district lies some 30 miles to the south of Wakamatsu, in the provinces of Chikuzen and Buzen, and covers an area of over 320 square miles.

The entrance to Wakamatsu harbor is very narrow, opening to a basin about a mile across at its widest part. This basin, again, opens to a large lagoon some 10 miles in circumference. It is on the eastern side of this lagoon that the imperial steel works stand. The lagoon is naturally very shallow, but dredging operations have been carried on since 1890 by the Wakamatsu Harbor Improvement Works, with the result that the depth of water alongside the quay-wall for about 60 feet is 20 feet at ebb tide.



BOILER HOUSE OF THE JAPANESE GOVERNMENT IRON AND STEEL WORKS AT WAKAMATSU

BURNS 500,000 TONS OF COAL

A branch line of the Kyushu Railway has a station immediately adjoining the steel works, and short lines connect the various parts of the works and the quay (amounting in all to 30 miles of lines) with the Kyushu Railway. Coal can be carried by the branch line from the mines at Futase, in the province of Chikusen, which belong to the steel works. The present outlay from these mines is not sufficient to meet the demands of the works, supplementary supplies being obtained from private-owned collieries at Miike, in Chikuzen Province, and the island of Takashima, near Nagasaki.

The total consumption of coal per annum is about 500,000 tons. A complete coal washing plant is in operation to supply the coke ovens. The cost of coke delivered at the blast furnaces is about $4.80 per ton. A by-product plant is being built to take ammonium sulphate and tar from the Semet-Solvay battery.

There are two blast furnaces in working order, and one in course of construction, which will be completed this year. The two furnaces now in use produce 300 tons of pig iron in 24 hours, one giving 173 tons and the other 125 tons. At present the blast machinery is driven by steam generated in 24 Lancashire boilers by the gas from the furnace tops, but a by-product plant is in course of construction for purifying the gas from the furnace tops, and using it in engines to drive the blast machinery.

ALL THE ORE COMES FROM CHINA

The ore used in the furnaces is hematite, with some magnetite and limonite. About 80 per cent of this ore comes from the Dayeh mines near Hankow, in China, under special contract with the Hang Yang Iron Works, owners of the mines. The ore contains on an average 60 per cent of iron and at least 100,000 tons must be supplied annually. The cost of this ore at mines is from 96 cents to $1.68 per ton, and the freight to Wakamatsu is $1.68 per ton, so that the cost of the ore delivered at the furnaces is from $2.64 to $3.39 per ton.

An irregular supply of hematite ore is obtained from Korea, and considerable quantities from the different parts of Japan, but the point of importance to be noted is that for purposes of manufacture the coal and iron fields of China are more convenient to the works than those of Japan, and this opens up great possibilities for the future.

There are three principal departments in the works—viz: (1) the pig iron department; (2) the steel departments; and (3) the rolling mill department. Besides these there are the electric central building, central pumping station, iron foundry, repairing shop, pattern shop and foundry, sand storage, boiler shop, smithy, chemical and mechanical laboratory and inspection bureau, and fire brick plant. The buildings are lighted throughout by electricity.

There are at present two Bessemer converters, with a capacity of 150 tons each per 24 hours, one charge amounting to 10 tons. In three years' time a third plant will be completed according to designs drawn up by the German, expert in charge of the Bessemer department. There are now eight Siemens-Martin furnaces, with a capacity of about the same quantity of molten steel per 24 hours as the two Bessemer converters—i. e., 300 tons. A great part of this steel is taken in five ton ingots direct to the plate mill.

Under present conditions the works are able to turn out about 90,000 tons of finished material a year. The original plans were for an annual output of 60,000 tons, which would have satisfied one-half of the demands of that time, but the success of the venture, and the steady increase of government requirements, have brought about a sensible extension of the original programme. In the course of the next five or six years it is confidently expected that the annual output will amount to 180,000 tons—i. e., double the present output.

NAVY TAKES LARGEST TONNAGE

By far the greatest portion of the products goes to the imperial navy department, the remainder being purchased by war and railway departments. Materials used at the various arsenals in Japan—Tokio, Kobe, Sasebo, Osaka, Yokiska, and Maizuru—are largely supplied by the imperial steel works. Practically all the materials for the building of ships of war are now turned out at the works; it should be noted, however, that armor-plate is not made there.

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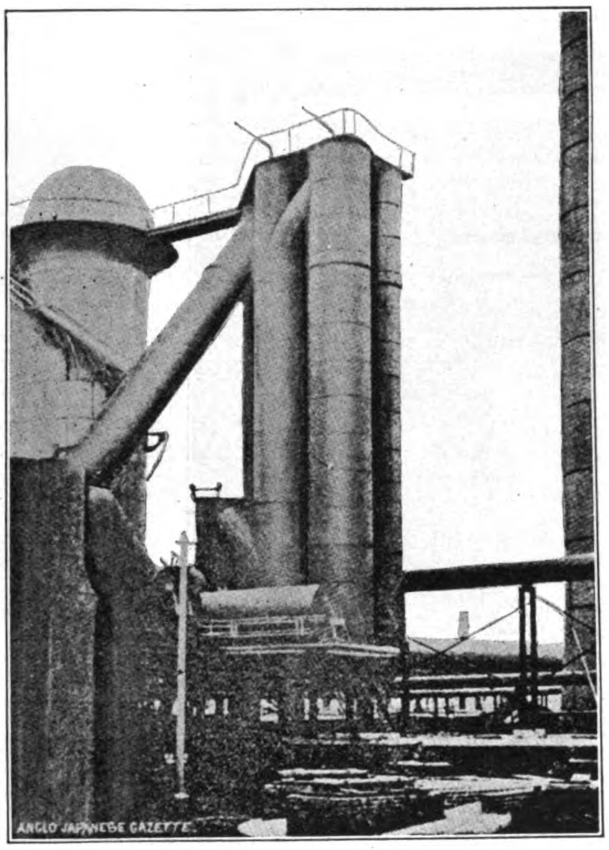
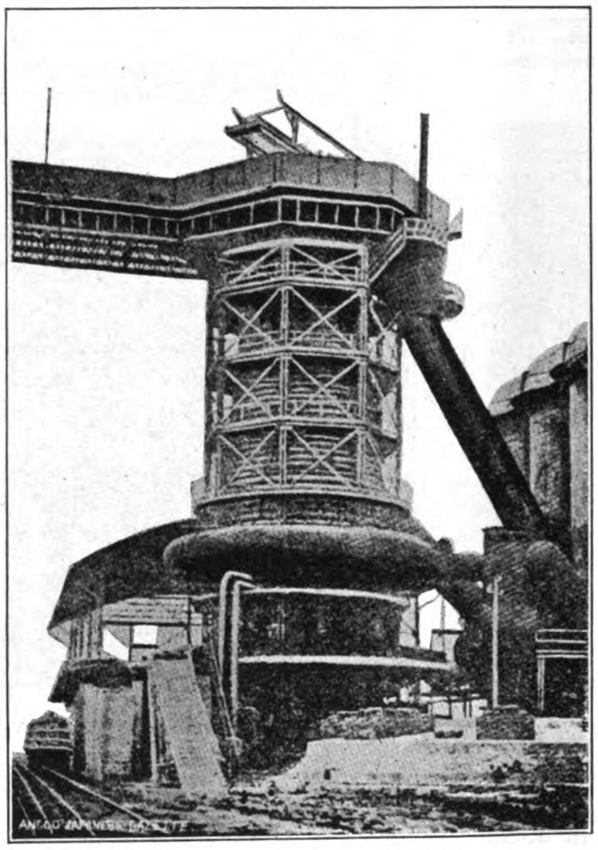
bamboo trays and turned over several times during its drying process by the Chinese girls and women. The tea may then be sold to some of the compradores or rich Chinese middlemen, who come up from the larger cities, and by them given further treatment in their own or other Chinese tea factories. Here, depending upon the kind of tea to be manufactured, the process is more or less involved. It is usually all hand manipulation, although some few tea machines are to be found in various parts of China. The tea is fermented in deep bamboo trays and then carried to the firing kettles where the real firing of the tea takes place. Subsequently it is bagged and sent to the principal tea marts, where it is usually given a refining process by the foreign buyers."

For the railway department 40,000 tons of rails are turned out yearly. These rails vary in weight from nine pounds to 60 pounds per yard, the output of heavy rails being 10 times that of light rails. Heavy rails are exported in large quantities to Korea for use on the Korean and connecting systems. The selling price of heavy rails is about $37 per ton. The prices paid by the three government departments for goods purchased from the imperial steel works are not dependent on the current foreign market prices, but are arranged in advance on the basis of the average prices ruling abroad during the immediately preceding five years, due consideration being also given to existing conditions at the works.



DUST CHAMBER INSTALLED IN JAPANESE STEEL WORKS



BLAST FURNACE NO. I AT WAKAMATSU STEEL WORKS

A large proportion of the machinery employed is of German make. In the first instance all machinery was procured from Germany with the exception of some electric cranes of American make, but now England and America are fairly well represented. The pig iron and steel plant is practically all from Germany. The number of skilled and unskilled workmen employed at the works is about 7,000, with 3,000 coolies, bringing the total number of employees up to 10,000. The daily wage paid varies from nine cents to 92 cents.

MANILA ELECTRIC RAILROAD AND LIGHTING CORPORATION REPORT FOR 1906

President Charles M. Swift of the Manila Electric Railway and Lighting Corporation submitted the following report to the shareholders under date of June 1st, 1907, at New York, for the year ending December 31st, 1906:

I submit with this report:

[1] Consolidated Statement of Earnings and Expenses for the twelve months ending Dec. 31st, 1906.

[2] Consolidated balance sheet as of December 31st, 1906.

These statements are prepared from an audit made by certified accountants employed for the purpose at Manila.

It will be noted that, in addition to providing for the payment of three dividends of 1 % each declared during the year 1906, the Corporation surplus has been increased by over $59,000.00. It is believed that this gratifying expansion will continue and will probably be exceeded during the coming year.

The President has just returned from an inspection trip in Manila and takes great pleasure in reporting that he found conditions there in a most satisfactory state. The physical condition of the property is excellent and is constantly being maintained to the highest point of efficiency. It is highly satisfactory to be able to report that the operation is universally complimented by the riding public, and that the very best feeling prevails in Manila, both in official and private circles, towards the management.

The transfer of lighting production from the Electricista plant to the new power house has been entirely accomplished, with the result that a considerable saving is being effected in operating expenses.

The entire stock of the Manila Suburban Railways Company has been acquired by this Corporation. While the suburban line has been completed only as far as Fort McKinley, the first month's operation shows encouraging results.

It is, of course, too early to draw positive inferences from this partial operation during so short a period, but our General Manager, Mr. Laffin, agrees with the President that the estimate heretofore made, that this extension would earn twice its interest, will be very considerably exceeded.

The Suburban Company has recently acquired a franchise to build a branch line from a point on the Manila extension to Taguig and the Laguna de Bay. Preliminary investigations made by the President during his stay in Manila lead him to believe that the building of this additional line will be a profitable venture; but as the franchise fixes no limit for the time of construction, actual work will not be commenced until the Directors are in possession of a complete report demonstrating the advisability of the venture.

Respectfully submitted,

CHAS. M. SWIFT,
President.

CONSOLIDATED STATEMENT OF EARNINGS AND EXPENSES FOR 12 MONTHS ENDING DECEMBER 31, 1906.

Gross Earnings:		
Electric Light and Power....	$381,120.00	
Railway........................	513,839.71	
Trucking......................	15,514.41	
		$910,474.12
Operating Expenses:		
Electric Light and Power....	$184,320,62	
Railway........................	269,361.25	
Trucking......................	14,167.21	
		$4 7,849.08
Net Earnings		$442,625.04
Fixed Charges:		
Interest on bonds.............		$233,208.34
Surplus for Twelve Months:		$209,416.7

Consolidated Balance Sheet. (Condensed) December 31st, 1906.

Assets:		
Stocks and bonds of subsidiary Companies........	$10,632,107.50	
Improvements: Additions to properties of subsidiary companies..........	$137,929.44	
		$10,770,036 94
Current Assets:		
Cash.........................	$127,394 73	
Total all other current assets........	377,785 85	
		$505,180 58
Total Assets:		$11,275,217.52
Liabilities:		
Capital Stock,		
Issued......................	$6,000,000.00	
In hands of Trustees for benefit of Co. $1,000,000.00		
Bonds,		
Authorized.... $5,000,000.00		
Issued..........	4,785,000.00	
		$10,785,000.00
Current Liabilities:		
Accrued Interest...........	$79,750.00	
Dividend payable January 10, 1907....................	50,000.00	
Total all other current liabilities..........	80,971.22	
		$210,721.22
SURPLUS......		279,496.30
Total Liabilities:		$11,275,217.52

PHILIPPINE SCHOOLS INDUSTRIALIZED

By FRANK R. WHITE

Second Assistant Director of Education.

With the beginning of the current school year, a new course of primary instruction is prescribed for the public schools of the Philippines. The principal change effected is in the addition of a fourth year to the original course, opportunity being so given for the introduction of a large amount of industrial training throughout the course. It is not intended to undertake the technical instruction of every primary pupil in a trade; but hereafter no pupil can complete the fourth year of primary work without acquiring some knowledge of and a certain degree of manual skill in some useful industry.

In the first two years of school attendance, the pupil is instructed in simple forms of handiwork, such as stick laying, paper folding, clay and sand modeling, and weaving of various fibers. In the third year, he begins the study of plants with practical garden work. It is intended that a vegetable garden shall be established in connection with every primary school in the Islands. Wood and bamboo work are also introduced in this year, including whittling, repair of school furniture, and framing of blackboards. In communities where such work may be satisfactorily developed, the weaving of fans, mats, baskets, hats, and fabrics will be undertaken; also simple pottery. The girls in this grade will acquire an elementary knowledge of plain sewing. In the fourth grade, all of these lines of work will be pursued in a more extensive and practical way, an attempt being made to produce articles of actual value. In this fourth and final grade of the primary schools, more time will hereafter be devoted to industrial work than to any other line of instruction, the daily periods being as follows;

Industrial Instruction	100	minutes per day.
English	60	" " "
Nature Study and Civics	25	" " "
Arithmetic	40	" " "
Geography	30	" " "
Opening Exercises in Music	25	" " "
Physical Exercises and Recess.	20	" " "

The aim of industrial teaching in the new primary course as now prescribed is, *first* of all, to remove from the minds of pupils and parents prejudices which may exist against manual labor; *second*, to develop a degree of manual dexterity in every pupil; *third*, to give each boy and girl an introduction to some useful occupation.

The revised course of study is the outgrowth of the experience of superintendents and teachers during the past six years. The proposed lines of industrial work have all been tried out in various communities and found to be practical. Hundreds of school gardens have been conducted annually with success. In many towns, the people have been led to establish family gardens and have so secured a dependable means of support. In a coast town of a Visayan province, an American teacher five years ago established a school garden and planted in it a few hills of corn, the first known in that community. The resulting crop furnished seed for hundreds of gardens in the town and within three years of the first planting, while famine was common throughout the Visayas, the people of this town had food in plenty. Corn fields now cover much of the fertile area of the coast of that island.

Woodworking shops have been equipped and instruction established in the intermediate departments of 30 of the Provincial High Schools. This is aside from the Trade School at Zamboanga and the woodworking department in the Philippine Normal School. The Insular Government has supplied each of these shops with a good outfit of bench tools and the pupils are actually constructing large amounts of school and house furniture, and, in many cases, are gaining a general knowledge of rough carpentry. At five provincial points, namely, Iloilo, Sorsogon, Vigan, Batangas, and Bacolor, extensive woodworking machinery plants have been installed and are now in operation in connection with high and intermediate schools.

Blacksmithing and ironworking tools have been supplied in six schools. Dishes, cooking apparatus and sewing materials have been provided by the Insular Government at 25 provincial capitals and practical instruction in this line is in progress in each of those towns.

During the past year the Insular Government expended through the Bureau of Education approximately ₱30,000 for industrial equipment, including woodworking and ironworking tools, agricultural implements and domestic science outfits. This does not include considerable expenditures by municipal and provincial governments for the ordinary expendable materials required in the maintenance of their schools. For the current fiscal year, ₱60,000 is being set aside by the Philippine Commission for the purchase of further industrial equipment and this amount will be augmented by sums appropriated from municipal and provincial treasuries.

It is the plan of the Bureau of Education as understood by all division superintendents and other provincial officials, to promote the development at each capital of a provincial school which shall be housed in substantial buildings, ample not only for the accommodation of regular academic work, but also for classes in shop woodwork, housekeeping, agriculture, and minor forms of industrial instruction. Many industrial buildings have already been erected and others are in process of construction.

PHILIPPINE NORMAL SCHOOL GARDEN

From time to time, the persons charged with control of the educational interests of the government have been criticized for not having put primary emphasis from the beginning on industrial instruction. Theoretically, it might have been well to have made every school from the very first an industrial school; but in actual practice this was impossible. The first responsibility of the public schools was to win the interest and support of the Filipino people. This has been accomplished. The popularity of the schools is now established as it never would have been if manual training had been given first place originally in the scheme of public instruction. The transition from the old to the new is now being effected not only without loss of prestige to the schools but with increasing evidence of loyalty to the system on the part of the masses of the people and their leaders.

PHILIPPINE NORMAL SCHOOL

Perhaps no institution in the Philippines is better equipped to develop character in the Philippine youth than the Philippine Normal School, and particularly is this true of the dormitory where the future wives and mothers as well as teachers are carefully trained in the responsibilities that fall within the woman's sphere of influence, and where that training is carried on in the wholesome atmosphere of

pure home life. In the bulletin issued by the bureau of education is a complete outline of the purposes of the institution with a short history, excerpts from which follow:

The Philippine Normal School in Manila was organized under the provisions of Act No. 74 of the United States Philippine Commission, during the year 1901.

The primary purpose of this school is to train Filipino men and women for service as teachers in the public schools of the Archipelago; but, owing to the fact that the school possesses a superior equipment in scientific lines, and is prepared to give advanced courses in other subjects, students not desiring to become teachers may be admitted. Such students, on completing a four years' secondary course, will be granted diplomas from the high school department of the Normal School. These diplomas will not admit the holders to the classified teaching service. Students completing shorter secondary courses will receive appropriate certificates.

Students preparing for schools of law or medicine have been availing themselves of the facilities of the school, and some have also been preparing for entrance to American universities.

During the coming year special courses in domestic science and in nursing will be offered.

A special elementary course for young women will also be given. This course is designed for young women 16 or more years of age who have little or no knowledge of English. It will consist of one year's work in arithmetic, English, grammar, composition, geography, and domestic science. Opportunity will be given students in this course for the study of music and drawing.

STATUS OF GRADUATES

On request of the General Superintendent of Education, approved by the Honorable Secretary of Public Instruction, after a careful examination of the work of the school, the following was adopted by the Philippine Civil Service Board November 9, 1903:

Ordered, That the future graduates of the Insular Normal School at Manila shall be eligible for appointment to the classified teaching service of the Philippine Islands without examination by the Civil Service Board.

The following extract from the records of the Supreme Court applies to those who graduate from the regular Normal School course or from any authorized four-year high-school course given in the Normal School:

An amendment to Rule 5 relating to requirements of applicants for admission to the bar.

The following amendment, to be added at the end of Rule 5, was adopted by the Supreme Court:

"*Provided, however*, That from the first day of March, 1908, every applicant for admission to the bar shall file with the clerk of this court, in addition to the certificate required in section 6 of the rules, a certificate showing that before the time he began the study of law he had completed the course of studies formerly required by Spanish legislation for the degree of bachelor of arts, or a course of studies identical or equivalent thereto, or to those now found in the curriculum of the Government Normal School."

The following extract from section 1 of Act No. 1627 refers to those who have completed the two-year course for magistrates heretofore given and to future graduates from the course in the high-school department outlined under the heading, "Preparation for magistrates or for entrance to a law school:"

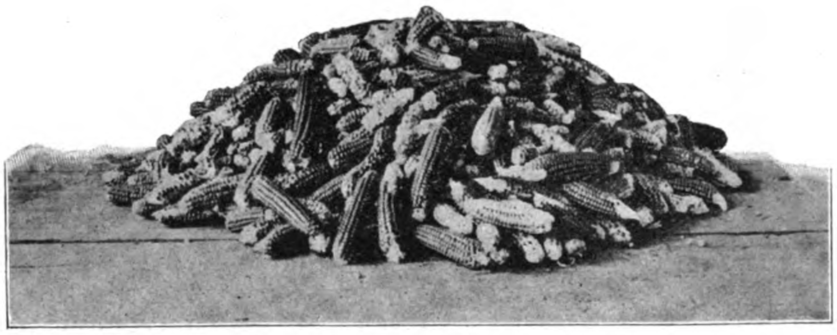
One justice of the peace and one auxiliary justice shall be appointed by the Secretary of Finance and Justice for the city of Manila, for each municipality in provinces organized according to the Municipal Code, and for towns or places in the Moro Province not organized into municipalities or, if included therein, are distant from or not easily accessible to the center of population. Whenever a vacancy occurs therein, the judge, or judges, of the Court of First Instance of the district shall forward to the said Secretary a list of names of persons qualified to fill said vacancy. In preparing said list preference shall be given to any justice of the province who may desire a transfer to another station and whose record entitles him to promotion. The Director of Education shall certify to the said Secretary the names of all persons otherwise qualified, who shall have completed the course for magistrates at the Philippine Normal School or University and have expressed their willingness to serve as justices. Any justice who has served satisfactorily one year and desires a transfer or promotion to another province may file an application therefor with the said Secretary together with a statement of the judge of First Instance of the district as to his qualifications. Appointments shall be made from the lists furnished as above provided, preference being given first to those last named and second to those certified by the Director of Education.

LOCATION AND ACCOMMODATIONS

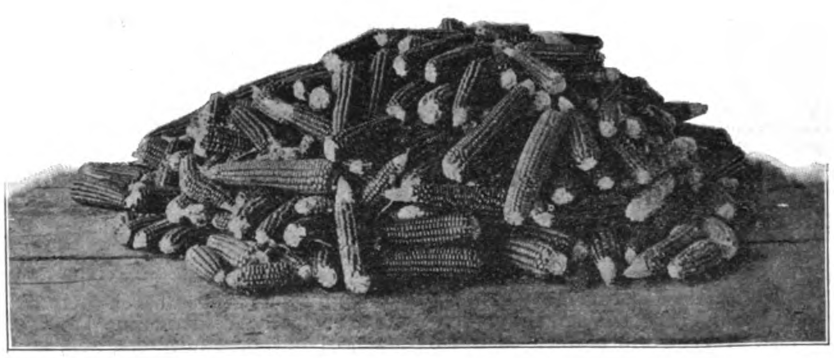
The school occupies five of the permanent buildings on the Exposition Grounds in Ermita, Manila, one of the buildings being the main structure, and also uses several temporary buildings. These supply an assembly hall, twenty-three class rooms, laboratories for physics, chemistry, botany, zoology, agriculture, and domestic science, a woodworking shop for manual training, storerooms, and the superintendent's office. In addition to these, laboratories and class rooms for the new special courses in cooking, sewing, and nursing will be located in the large building on the corner of Calle Mercado and Calle E, which is to be opened as a part of the women's dormitory for the coming year.

The women's dormitory of the Normal School was established by the Government in 1903 for students coming from the provinces. It is located at 56 Calle Mercado, Ermita, within easy walking distance of the school. At present it will accommodate 90 boarders, but with the new building adjoining, which will be ready for occupancy the coming year, it is thought that 150 women can be received. No dormitory for men students has been provided by the Government. Such students find homes in private families near the school, or in one of the dormitories supported by different religious denominations.

UNCULTIVATED (10¼ POUNDS)



ROWS ONE-HALF METER APART (69¾ POUNDS)



CULTIVATED (99 POUNDS)
YIELD FROM EQUAL AREAS OF CORN LAND IN SCHOOL GARDEN

CONDITIONS OF ADMISSION

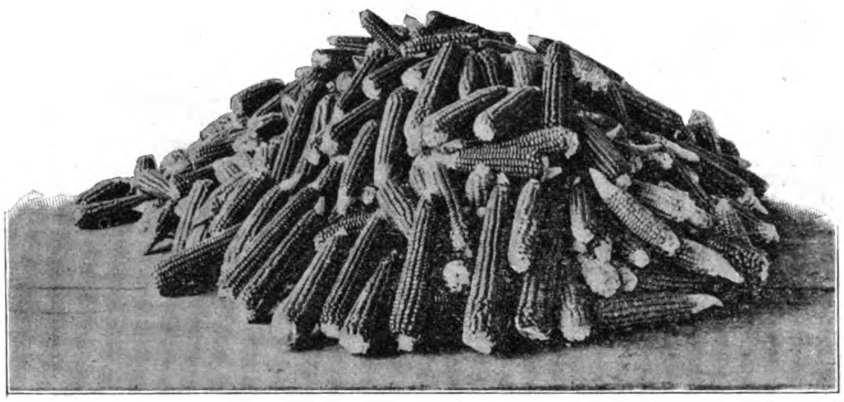
All students wishing to enter the Normal School for the first term must present themselves between the dates June 10 and June 24. Admission for the second term will be granted only from October 28 to November 4.

New students applying for admission to the regular course, or to special courses of secondary grade as preparatory to medicine, law, nursing, or domestic science, must either possess Govern-

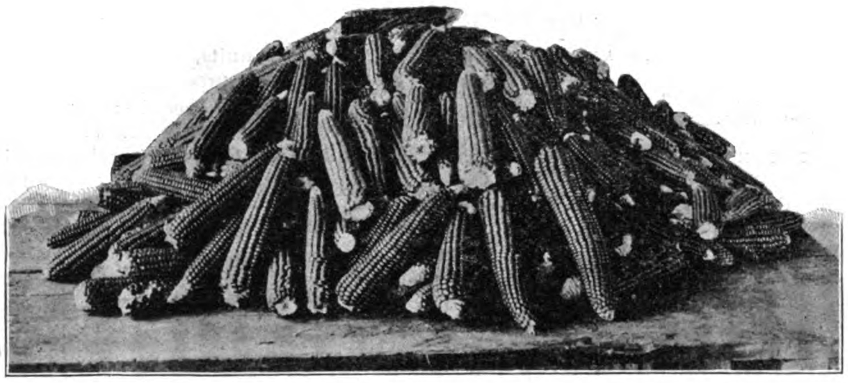
ment certificates showing that they have completed the intermediate course or submit evidence of preparation equivalent to this. They should bring transfers from the school last attended.

Young women wishing to enter the course in nursing must be at least 17 years of age, while those entering the special elementary course must be not less than 16.

In order to provide classes for practice teaching in the training department, as many pupils of primary and intermediate grade as may be required for this purpose will be admitted. Pupils from Manila may enter the primary classes in this department, but the intermediate grades will be opened to students from the provinces only. Applicants for admission to the intermediate grades must bring Government certificates showing that they have passed the examination for the completion of the primary course, and they must also present regular transfers from the school last attended. They must be at least 14 years of age.



GUANO (113 POUNDS)



NITRATE OF SODA (137½ POUNDS)

BARN-YARD MANURE (163¾ POUNDS)
YIELD FROM EQUAL AREAS OF CORN LAND IN SCHOOL GARDEN

DORMITORY OF THE NORMAL SCHOOL

The dormitory is under management of Miss Mary E. Coleman, dean of women students, and her assistant, Miss Sofia Reyes. Every effort is made to render it a real home for the young women, their health, exercise, amusements, and studying receiving careful attention. Dr. Roxas, a Filipino physician employed by the Civil Government, calls frequently to inquire concerning the health of those living in the dormitory, and treats all illnesses free of charge, the patients, however, paying for their own medicines.

The young women are never left alone in the dormitory, and are not permitted to leave the grounds without a companion and the consent of the one in charge of the house at the time. Saturday afternoons and Sundays are visiting days. The callers permitted any young woman are limited according to the wishes of her parents. Various formal and informal functions are held during the year, and in these the young women are given active and responsible parts.

Religious instruction under the provisions of section 16 of Act No. 74 is given for one-half hour on Monday and Thursday of each week by Rev. J. P. Monaghan, S. J. No young woman is allowed to enter this class except by the written request of her parents or guardian. Permission is given to attend church at any time, provided there is no interference with school work thereby.

There are two classes of boarders in the dormitory—*internas* and *media internas*. *Internas* are young women from the provinces who make their home in the dormitory, paying ₱20 per month, in advance, or ₱190 for the entire school year. No deduction is made for the two-week's Christmas vacation, even though the student leaves the dormitory; nor for absences from the dormitory of less than one month during the time that the school is in session.

The *media internas* consist of those who live in Manila but whose homes are at such a distance from the school that they find it advisable to take their midday meal in the dormitory, paying therefor ₱10 monthly.

The amount paid for board does not cover laundry expenses, this item, amounting to from ₱2.50 to ₱4 per month, being additional.

Each *interna* coming to the dormitory must bring the following articles:

9 underskirts.	2 blankets.
12 dress waists.	1 sleeping mat.
12 dress skirts.	2 pillows.
12 chemises.	2 mosquito nets.
12 handkerchiefs.	1 coverlet.
6 pairs of stockings.	2 pairs of shoes.
12 towels.	2 pairs of sandals.
6 sheets.	1 box or trunk.
6 pillowcases.	1 umbrella.
9 nightgowns.	1 plate, knife, fork and spoon.
1 drinking cup.	Necessary toilet articles.

By making special arrangements, an *interna* may bring her own piano.

NOTE.—For a description of the dormitory library see section on "Libraries."

Only those young women will be admitted to the dormitory whose homes are outside of Manila, who are at least 14 years of age, and who have been admitted to the Normal School as students.

An exception to the above rule is made in the case of those desiring to take the preparatory nurses' training course. Students in that course whose homes are in Manila may be admitted, but, as has been stated elsewhere, they must be at least 17 years of age.

The dormitory is equipped with a ward where the students suffering from ill health may be treated. It is also used in connection with the preparatory course for the training of nurses. Miss Charlotte Layton of East Orange, New Jersey, a trained nurse of wide experience, has been engaged to take charge of this branch of the work.

DISCIPLINE

Since the Normal School is engaged in preparing students for responsible positions, only those who exercise self-control and who devote themselves with earnestness to their studies are desired. Irresponsible, idle, or vicious persons will be excused from the school.

THE SCHOOL GARDEN

The accompanying illustrations give a fair idea of the extent of the agricultural work in connection with the school. Particularly is this true of the comparisons shown by practical experiments in the culture of corn.

COURSES OF STUDY

Definitely prescribed: Four years English, two and one-half years mathematics, one year history, one year science, two years professional training; total, ten and one-half units.

Prescribed with options: Two years foreign language and one year history or three years history, one year science; total, four units.

Free electives: One and one-half units.

As a rule, no student will be permitted to carry more than four units at one time. A unit is one daily study carried through an

entire year where the student has not more than four studies at one time.

A diploma from this course admits the holders to the classified teaching service of the Philippine Islands without examination by the Civil Service Board.

teaching service, since preparation for teaching is omitted from these courses.

This department also offers:

A portion of an agricultural high school course.

A special course in domestic science. Cooking, sewing, nursing, laundering. Two years.

2. Mathematics: Algebra through simple series including algebraic theory, one and one half years; plane geometry, one year;
3. History, optional, one year;
4. Science, usually optional, one year;
5. Foreign language, optional, two to four years;

DOMESTIC SCIENCE LABORATORY, PHILIPPINE NORMAL SCHOOL

HIGH SCHOOL DEPARTMENT

The high school department offers the following four-year courses of study:

Preparation for admission to American colleges.

Preparation for entrance to the Philippine Medical School.

Preparation for Magistrates or for entrance to a law school.

A preparatory course in nursing. (One year.)

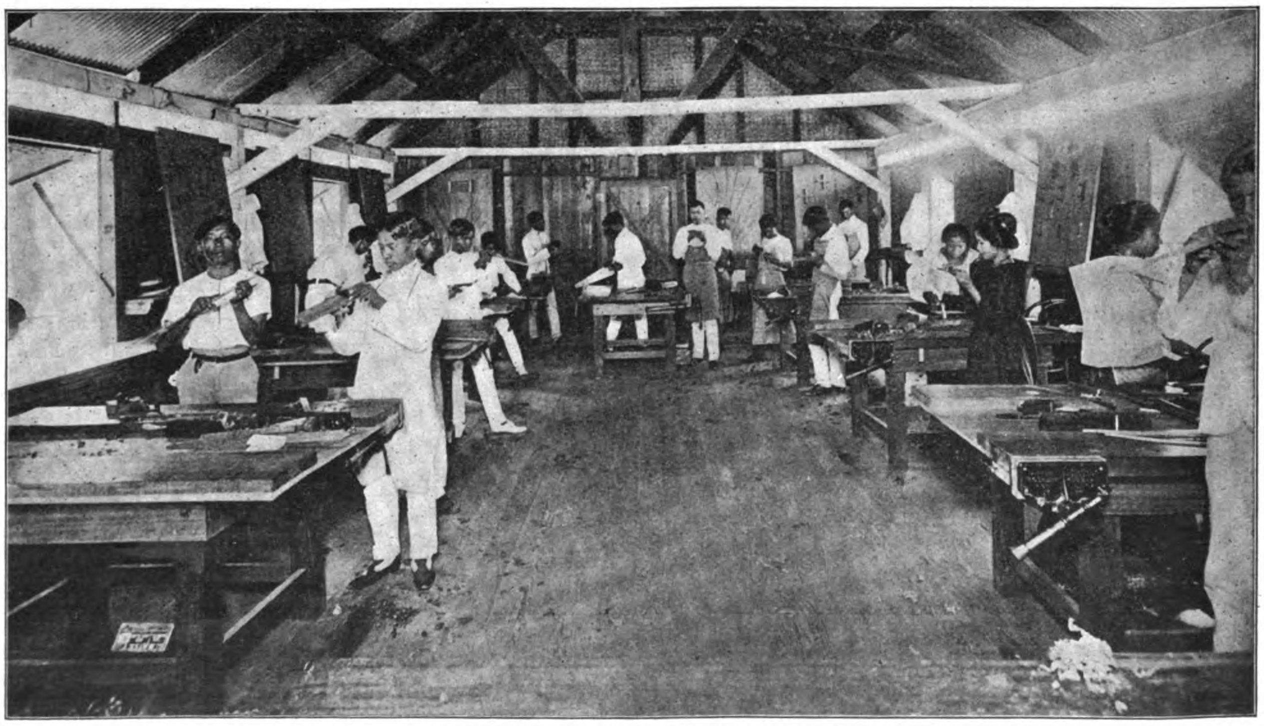
On satisfactory completion of these courses appropriate certificates will be given.

PREPARATION FOR ENTRANCE TO AMERICAN COLLEGES

An extended examination of catalogues of American colleges and technical schools shows

6. Extra units, four to six, completing a four years' course.

The minimum requirement for entrance to American colleges is fifteen units, and the completion of a four years' secondary course. Students who have done work of satisfactory quality beyond the minimum requirement are usually admitted to advanced standing.



MANUAL TRAINING LABORATORY, PHILIPPINE NORMAL SCHOOL

Preparation for engineering school.

A commercial high school course.

Any student who completes one of the above courses in a satisfactory manner will be granted a regular high school diploma; his diploma, however, will not admit him to the classified

that the minimum requirements for admission to such institutions, with the exception of medical schools, which as a rule require more, are expressed approximately in the following:

1. English literature and composition, two to three years;

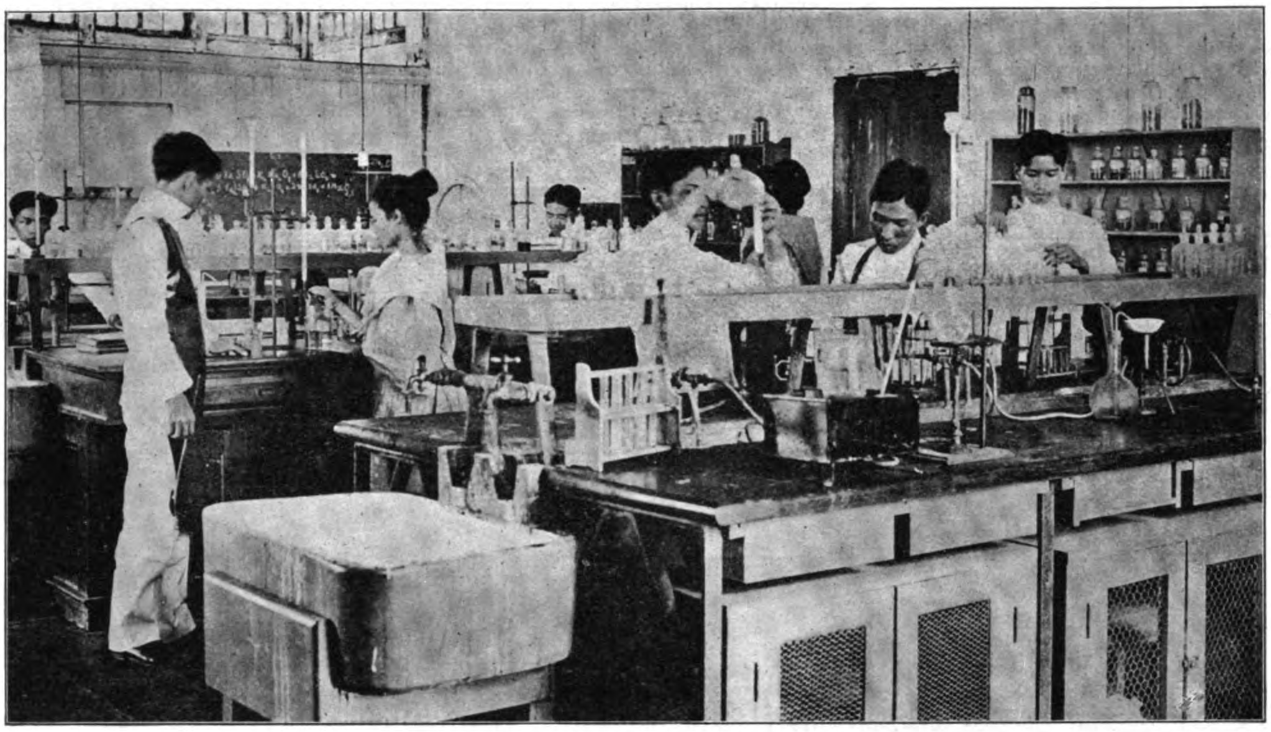
By the introduction of electives, the work required for graduation from the Normal School has been made very elastic, so that students can select their studies and use twelve of the sixteen units of the regular Normal School course to satisfy American

college entrance requirements, the two units of preparation for teaching and the first two years of English alone being unavailable.

The remaining units necessary can be secured by appropriate selection from the elective studies offered at the Normal School.

dormitory there will be a small hospital ward equipped with everything necessary for the care of the sick. The student nurses with their instructor will have charge of the hospital, and will care for any young women of the dormitory who may become ill, thus

a general course on education, attention being paid to the purpose and history of education, psychology, courses of study, and methods. The students are also given frequent opportunities for observing and discussing work done by the teacher in charge.



CHEMISTRY LABORATORY, PHILIPPINE NORMAL SCHOOL

The Normal School is also prepared to give the work necessary for entrance to the Philippine Medical School.

The academic part of this course will be given in the regular classes of the Normal School. The practical work will be done

assisting the visiting physician mentioned elsewhere in this catalogue.

TRAINING SCHOOL

The training department of the Normal School consists of as many classes in the

In their training work the students learn to prepare and outline the lessons that they teach and to use methods and devices approved by authorities on education. They also deal with many of the problems that arise in the school, and are instructed in

ZOOLOGY LABORATORY, PHILIPPINE NORMAL SCHOOL, MANILA, P. I.

at the dormitory. Each student in the course will be expected to plan, prepare, and serve a breakfast, lunch, and dinner at least once during the year.

PREPARATORY COURSE IN NURSING

This course is under the direct supervision of an American trained nurse, who lives in the dormitory. In the new annex to the

primary grades as may be required by the needs of the school.

Practice teaching is done in these classes under the direction of critic teachers, and students become familiar with the entire elementary school system during the years of preparation for teaching.

The practice teaching is accompanied by

the mechanical features of school organization, such as care and use of materials, seating, lighting, movement of classes, record keeping, and report making.

The courses of study for the training department are the regular primary and intermediate courses of the public schools.

FACULTY, 1906-7.

George William Beattie, Superintendent, Chemistry, B. S. and M. S. University of California.

George N. Briggs, Acting Superintendent, A. B. Iowa State University, graduate Iowa State Normal School.

Josefa Paula Alfaro, Assistant in Training School, graduate Philippine Normal School.

Kate L. Bassett, Kindergarten, graduate Alma College Training Department and Chicago Froebel Association, student, University of Chicago and Cook County Normal School.

John Franklin Bobbitt, English and Education, A. B. Indiana University.

Mrs. Sarah A. Bobbitt, English, graduate State Normal School, Los Angeles, Cal.

Mrs. Carrie J. Briggs, English, student Drake University.

Mrs. Mary Du Hamel Clagett, Librarian, student, Mount de Sales Convent of the Visitation, Baltimore, Md., Ecole Communale and Sorbonne, Paris, France.

Robert L. Clute, Agriculture, B. S. Michigan Agricultural College, Graduate Michigan Normal School.

Mary E. Coleman, Dean of Women Students, Ancient and American History, A. B. and A. M. Indiana University, graduate Indiana State Normal School.

Elisha Bingham Copeland, Botany and Agriculture, A. B. Leland Stanford, Jr., University, Ph. D. Halle University.

Mrs. Frederica B. Davis, German, graduate City Normal School, San Francisco, Cal.

Mrs. Helen M. Freeman, drawing, student State Normal School, Farmington, Me., special student Miss Dranga of Normal Art School, Boston.

Mrs. Mary E. Gordon-Dunster, Vocal Music, graduate Normal Music Institute, North Western University, special student (voice), Dr. Martin, London, England, and Madam Johnston-Bishop, Los Angeles, Cal.

Mrs. Clarissa K. Graham, B. S. Kansas State Agriculture College, B. S. University of California, student State Normal School, Los Angeles, Cal.

Mrs. Belle H. Josalemon Hopping, Domestic Science, A. B. in Education for Domestic Science, teachers' college, Columbia University, New York.

Thomas L. Jenkins, Seamanship and Navigation, student Naval Academy, Annapolis, Md., graduate revenue Cutter Service.

Prescott F. Jernegan, Philippine and Colonial History, and Latin, A. B. Brown University.

Graham Hawes Kemper, Mathematics, B. S. Kentucky University, M. S. Kentucky State College.

Harry H. Kenagy, Zoölogy, Chemistry, B. S. Doane College, Nebraska, graduate Student University of Nebraska.

George E. Mercer, Physics, Mathematics, A. B. Washburn College, Kansas, Graduate Student University of California.

Velear Leroy Minehart, Comparative Anatomy, A. B. Washington and Jefferson College, student Johns Hopkins Medical School, Baltimore, Md.

H. Lawrence Noble, Preparatory Law, A. B. and A. M. University of Pennsylvania.

Arthur Redford, Seamanship and Navigation, student, Liverpool Nautical School, American Steamship Master's License, Master's Certificate British Board of Trade.

Mrs. Ella J. Redford, Critic Teacher, student, Bethany College, Kansas, Cook County Normal School, Chicago, Terre Haute Normal, Indiana.

Sofia Reyes, Assistant Manager Women's Dormitory, student Santa Ana College, Molo, Panay.

Caroline T. Robbins, Critic Teacher, B. S. and M. S. Wesleyan University.

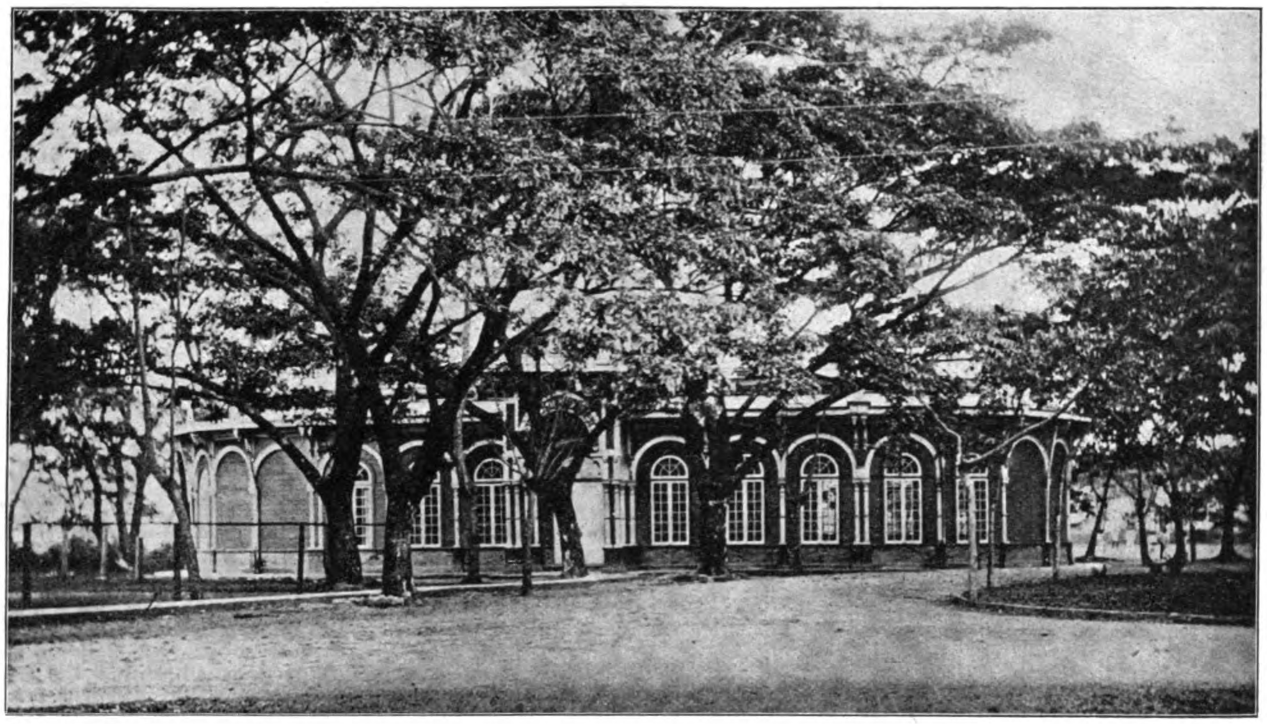
F. Theo. Rogers, Manual Training, graduate Lyman Manual Training School, Westboro, Mass.

Mrs. Nellie C. Sebree, English, A. B. Christian College, Columbia, Mo.

Winifred Sercombe, English, B. A. and M. A. University of Wisconsin.

Walter Robert Shaw, Botany, A. B. and Ph. D., Leland Stanford, Jr., University.

Edith A. Woodsum, Manual Training, Graduate Lick School of Mechanical Arts, San Francisco, Cal.



ASSEMBLY HALL, PHILIPPINE NORMAL SCHOOL, MANILA, P. I.

INCREASE IN TRANS-PACIFIC FREIGHTS

The Trans-Pacific Tariff Bureau recently announced its new rates for freight commencing from June 15th. The Tariff Bureau is composed of the Canadian Pacific Steamship Company, Nippon Yusen Kaisha, Portland and Asiatic Steamship Company, Boston Steamship Company, China Mutual Steam Navigation Company, Ocean Steamship Company, and the Great Northern Steamship Company. The rates issued apply to all vessels belonging to the above companies.

The new rates are considerably in excess of those formerly in force. Probably the greatest increase is on quicksilver—where the old rate was 35 cents per flask, the new rate is 50 cents. The following shows the increase on commodities consigned to Yokohama, Kobe, Nagasaki, and Moji:—

On asphalt shipped in barrels an increase of $2 per ton weight; on canned goods in cases, $8 is asked per ton, where $6 was the old rate. The rate on flour is raised from $3.50 to $4 per ton as from July 1st. To Shanghai the rate is raised $1. On sheet iron and steel the increase is $2.

The rates on live stock are raised $15 on each animal, except sheep, which remain the same. General merchandise, which heretofore had been shipped for $8 per ton by either weight or measure, whichever figures the most, has been raised to $10. Nails go up from $5 to $6 per ton. Potatoes, sugar in bags, and sugar in boxes or barrels are raised $2 on every ton.

Flour rates have taken a $2 jump on shipments to Yokohama and a $1 jump on shipments to Shanghai.

The bureau has also issued a new set of rules and conditions, as follows:—

Minimum charge to Shanghai, $5.50; to other ports of call, $5.

No shipments accepted unless the necessary space has been previously engaged.

When freight is consigned to "order" the name of consignee or party to be notified must be given.

Feed for live stock will be carried on vessel freight free except that any surplus landed at destination shall pay freight at current rates.

Shippers of flour must furnish with each shipment 2 per cent of empty sacks to be used for rebagging during loading and discharge.

Wheat must be packed in double gunnies, or bill of landing will be endorsed. "Not responsible for bursting of bags and consequent loss of contents."

FAR EASTERN COMPANY REPORTS

PERAK RUBBER PLANTATIONS

The Perak Rubber Plantations, Limited, pays no dividend. The gross profit is £2,288. One-third of the preliminary expenses are being written off and £1,014 is being carried forward. Operations on the estate were handicapped during the year by sickness. The labor position is not greatly improved.—*Perak Pioneer*.

CICELY RUBBER ESTATES CO.

The Cicely Rubber Estates Company, Limited, pays a dividend of 15 per cent on the ordinary shares and of 20 per cent on the preference shares; and carries forward £629.

BAGAN RUBBER CO.

Some interest will no doubt be roused locally by the prospectus of the Bagan Rubber Company Ltd., which has now been issued. The share capital is fixed at Tcs. 300,000 in 100 tical shares. The vendors will take 150 shares as the purchase price, and the company will acquire 1,000 acres of land on the main river in Kelantan, on a 99 years lease.

THE MALAY STATES COFFEE CO.

At the general meeting of the Malay States Coffee Co., held at Colombo July 3rd, a dividend of 10% was declared for the year ending March 31st.

BATU CAVES RUBBER CO.

At the annual meeting of the Batu Caves Rubber Co. £128 19s 8d were carried forward, but no dividend was declared. At the end of the second year the prospects were referred to as rosy and a large dividend promised for next year.

HIGHLANDS AND LOWLANDS PARA RUBBER CO.

At the annual meeting of the consolidated companies a dividend of 11% was authorized.

NEW RUBBER CO.

The Chenderiang Rubber, Limited, has been registered at London with a capital of £20,000 in £1 shares. To acquire the Sungei Landor Estate, to cultivate rubber and other trees, and to adopt an agreement with Whites, Limited.

KUALA SELANGOR RUBBER CO.

The annual meeting of the Kuala Selangor Rubber Co. was held at Colombo recently and the directors' report adopted. The company control 1,029 acres, of which 506 acres are held in reserve. During the year 343 acres were opened and cleared and partly planted in Para rubber. The balance of the acreage is under successful cultivation, 57 acres being in the ninth year.

ANGLO-MALAY RUBBER CO.

The Anglo-Malay Rubber Company, Limited, are making a further call of 2s. 6d. per share on the £1 (12s. 6d. part paid) shares.

A NEW RUBBER COMPANY

The prospectus is issued of the Simo Rubber Estates, Limited, which is formed to acquire the benefit of the group of estates in the State of Soerakarta, Java, known as Simo, which cover an area of over 12,000 acres, and particularly to develop the cultivated rubber now growing thereon, and to extend the area under Para rubber. The Simo Estates are situated about ten miles from Kalioso, a station on the main line from Solo to Samarang, the latter being one of the principal ports on the north coast of Java, with a regular service of steamers to Singapore and Europe direct. The capital of the undertaking is £35 000, in £1 shares, the present issue being 30,000 shares at par.

BUKIT RAJAH RUBBER CO.

The Bukit Rajah Rubber Company will report a dividend of 30 per cent for the year.

THE NEW LONDON BORNEO TOBACCO CO. LTD.

At the fifteenth annual meeting of the New London Borneo Tobacco Co. a final dividend of 7½ per cent less tax was declared on ordinary shares No. 1 to 80,000, a dividend of 12½ per cent less tax on ordinary shares from 80,001 to 110,000 and a dividend of £174 11s on the founders' shares.

SUNGEI KAPAR RUBBER

The first balance-sheet has been issued, and includes the transactions at the head office since August 8, 1906 (when the company commenced business), to March 31, while the estate accounts included are those down to December 31, 1906. At the date of the balance the company's properties had not arrived at a revenue-producing stage, and, consequently, there is no profit and loss account for the period covered by the accounts. At December 31, 1906, the whole of the Sungei Kapar estate, having an area of 1,330 odd acres, had been planted with Para rubber, and contained approximately 190,000 trees of various ages, none of which, however, had at that date come to the producing stage.

INDO-CHINA NAVIGATION CO.

At the annual general meeting of shareholders in the Indo-China Steam Navigation Company, Ld., in London the Directors recommended the payment of a dividend for 1906 of 2½ per cent, which will leave the Reserve Fund at £60,000, Underwriting account at £270,000 and a balance of £3,694 to be carried forward.

SHELL TRANSPORT TRADING CO.

The directors of the Shell Transport and Trading Company have declared an interim dividend of 5 per cent.

OSAKA SHOSEN KAISHA

The general meeting of the Osaka Shosen Kaisha for the half year just ended was on June 23rd. The total profit of the company has amounted to 2,013,896 yen. Of this sum, 252,000 yen has been set aside for insurance of vessels, 411,000 yen for repair of vessels, and 291,000 yen for depreciation, leaving a net profit of 1,059,896 yen. A dividend for the period is proposed at the rate of 6 per cent per annum, which will absorb 426,250 yen. The balance of 705,012 yen is to be carried forward.

THE JAVA-JAPAN LINE

The directors in their report for 1906 state that the high price of coal and the low freight rates for the transportation of sugar militated against increased profit for the year notwithstanding the fact that seventeen voyages were made in 1906 against thirteen in 1905.

The directors state that, in order to improve the service, they intend to divide the traffic from the Dutch Indies to China and Japan into two separate lines—one being via Hongkong to Shanghai and back, and the other going direct to Japan and returning via China to the Indies. These changes can, of course, only be effected with the sanction of the Government, and steps have already been taken to obtain that sanction. In the meantime a commencement has been made, within the terms of the contract, by the inauguration of a special line between Java and Japan, one voyage on that route having been made last year with satisfactory results. As in previous years, so on this occasion a large sum (200,345 florins) has been written off from the book value of the fleet and 9,730 florins saved on premiums in the course of last year are added to the insurance reserve. The gross earnings were 369,958 florins (against 377,405 florins in 1906), and 135,000 florins are paid out as a 4½ per cent dividend, against 5 per cent dividend, for 1905.

KEIHIN ELECTRIC RAILWAY CO.

At a recent meeting of the Keihin Railway Co. a dividend of 13% was declared.

TAMAGAWA ELECTRIC RAILWAY

A general meeting of the Tamagawa Electric Railway was held at the Akasaka San Kaido yesterday afternoon. Net profit of the company for the last semi-annual term was 4,197 *yen* of which 2,373 *yen* was distributed as 5 per cent dividend on preference shares.

TIENTSIN GAS AND ELECTRIC LIGHT CO.

At the seventeenth annual meeting of the Tientsin Gas and Electric Co. it was decided not to authorize the payment of a dividend for the year 1906. This action was taken in view of the necessity of purchasing new machinery for which new capital had to be raised.

TIENTSIN WATERWORKS CO. (LIMITED)

At the tenth annual meeting of the Tientsin Waterworks Co. a dividend of 6 per centum was authorized. The directors in their report recommended that extensions in the plant would be necessary in the near future and it was suggested in the meeting that the water rates were too low.

JAPAN FLOUR MILLING CO.

The 21st half-yearly report of the Japan Flour Milling Company for the period from December to May last, just published, shows the net profit for the period to be Y110,166, including Y37,791, surplus brought over from the previous period. Of this sum, Y41,280 has been paid for a dividend at the rate of 23 per cent per annum, Y4,400 has been placed to the reserve, Y10,000 to the reserve for the depreciation of machinery, plant and buildings, Y7,200 for bonuses to officials, a surplus of Y47,287 being carried forward. The authorised capital of the company is Y1,000,000, of which Y474,000 is paid-up, with a reserve aggregating Y85,600, while debentures have been issued to the amount of Y70,000. Of the capital, Y220,743 is invested in the premises, machinery and plant.

NEW DARVEL BAY (BORNEO) TOBACCO CO.

The New Darvel Bay Tobacco Co. declared a final dividend of one shilling a share, June 25th.

GREAT NORTHERN TELEGRAPH CO.

The report for the year 1906 states that the decrease of the traffic made itself very seriously felt at the return of more normal conditions in the countries connected by the company's cables. It is the enormous Press and Government correspondence in particular which has decreased, without being compensated for by a corresponding increase of the private and commercial traffic; at the same time the two new competing lines in the Far East, the Commercial Pacific Cable Company and the German-Dutch company, have commenced to take their share of the traffic. Compared with the previous year, the revenue account shows a decrease in "traffic receipts" of £97,342, "interest" is about £779 less, and "sundries" higher by about £1,419. As to expenses, "salaries and wages" have increased by £5,802, and a further rise in connection with this item must be prepared for; new stations have been established at Thorshavn, Seydisfjord, and Irkutsk, and it has become necessary to increase the salaries of the staff in China and Japan, where the increased cost of living occasioned by the war seems to have become permanent. The balance shows under assets that "participation in other telegraph undertakings" has increased by £36,717. "Investments on account of reserve and renewal fund" have exceptionally decreased

by more than £9,370, as the cost of the Iceland cables, etc., has completely absorbed the proceeds of drawn bonds and the interest on the fund's investments, as well as the amount set aside last year. For the same reason "advances guaranteed by banks" have been reduced by about £55,556, whilst "cash in Europe and in China and Japan" and "sundry debtors" have also decreased, owing to the lower traffic receipts. The reserve and renewal fund has increased by £17,781 only, the reason for this small increase being the above-mentioned heavy expenditure; the fund will have to bear still heavier expenses during the current year. Thirty shillings per £10 share, representing the final dividend and bonus for 1906, are now payable.

S. MOUTRIE AND CO., LTD.

The eighth annual meeting of shareholders of S. Moutrie and Co., Ltd., was held at Shanghai on June 27, Mr. E. C. Pearce presiding.

Sympathetic reference was made to the recent death of Mr. Moutrie. The report for the nine months which terminated on March 31 last showed a profit of $18,097.33 as against $42,132.87 for the year which terminated June, 1906. The demand for pianos had decreased materially and this was no doubt largely due to the prevailing depression in trade. The Hongkong Agency under the management of Mr. Paine was showing considerable progress month by month. Stocks were considerably heavier than in former years as the Directors had anticipated a greater increase in the turn-over. The increased stock had necessitated a loan of $21,000 and an increase in the overdraft to $42,901.99 It was proposed to pay no dividend but carry forward $10,329.58.

NETHERLANDS INDIA COMMERCIAL BANK

The Nederlandsch-Indische Handelsbank (Netherlands India Commercial Bank) has declared a dividend of 8.7 per cent for the year ending 31st December, 1906.

SHANGHAI WATERWORKS CO.

An interim dividend of 15s. per share on the old issue and 11s. 3d. on the new has been declared by the Shanghai Waterworks Co., Ltd., for the half-year ending June 30, 1907.

SHANGHAI DOCK AND ENGINEERING CO.

The Shanghai Dock and Engineering Co., Ltd., has declared a dividend of Tls. 3 per share for the year ending 30th April, 1907. The last year's dividend was Tls. 8 for the year.

JAPAN COTTON CO.

The Board of Directors of the Japan Cotton Company, of Osaka, have declared a dividend for the half-year just closed at the rate of 12 per cent per annum. A proposal to establish a branch office at Bombay for the purpose of facilitating the purchase of Indian cotton was also agreed to.

BANQUE DE L'INDO-CHINE

The Banque de l'Indo-Chine has announced that the dividend for the latter half of 1906, viz., f.22.50 per share, less tax, is to be paid at 15 bis, rue Laffitte, Paris, on or after July 1.

TOKIO MERCHANDISE EXCHANGE

The Tokyo Merchandise Exchange held a general meeting of the shareholders on June 25, when a dividend for the first half of this year was declared at the rate of 11 per cent per annum.

TOKIO STOCK EXCHANGE

The Tokyo Stock Exchange declared a dividend for the first half of this year at the rate of 4 per cent per annum at a general meeting of the shareholders held on June 25, and the sum of 23,547 yen was carried to next account.

TOKYO CARDBOARD MILL CO.

The Tokyo Cardboard Mill Company declared a dividend for the first half of this year at the rate of 14 per cent per annum at a general meeting of the shareholders held on June 24.

BELL'S ASBESTOS EASTERN AGENCY, LIMITED

The twelfth annual report states:—The business has continued to make satisfactory progress, the profit, inclusive of the amount brought forward from previous years, showing a credit balance of £2,404 3s. 8d. The directors recommend that this amount be allocated as follows:—To set aside £485 8s. 3d. to "Reserve" for bad and doubtful debts and depreciation on stock, etc., to write £800 off "Purchase of Trading Rights," to pay a dividend of 10 per cent for the year, free of income-tax, absorbing £480 10s., and to carry forward £638 5s. 5d. to the next account; the sum carried forward includes provision for payment on June 1 of the sum of £500 off the debenture, in terms of the bond.

THE GREEN ISLAND CEMENT CO., LTD.

An extraordinary general meeting of shareholders in the Green Island Cement Co., Ltd., was held at the office of the general managers, Messrs. Shewan, Tomes & Co., July 17, for the purpose of passing a special resolution.

The Secretary read the notice convening the meeting, and the following resolution was put to the meeting:—

"That it is desirable to capitalise the sum of $900,000, being part of the undivided profits of the company standing to the credit of the company's reserve fund and accordingly that the same be distributed as a bonus amongst the shareholders of the company at the date of the passing of the resolution in proportion to the shares held by them respectively, and that the general managers be, and they are hereby authorised to distribute among the shareholders the 200,000 unissued shares in like proportion."

STRAITS TRADING COMPANY

The following is the Report of the Directors to the Members of the Straits Trading Co., Ltd., which will be submitted June 24th.

Your Directors now submit the Accounts for the half-year ended 31st March, 1907, being the second half of the business year 1906/1907.

After making ample provision for bad and doubtful debts and writing off depreciation, the net profits amount to $508,855 05, to which has to be added the balance of $78,744.21 brought forward from last account, making a total of $587,599.26 available at 31st March, 1907.

Your Directors recommend:—

1. That a dividend of $1 and a bonus of 50 cents per share be paid to Shareholders, absorbing $375,000.
2. That $50,000 be added to the Reserve Fund which will then stand at $1,050,000.
3. That $50,000 be added to the Fund for equalizing Dividends, bringing it up to $300,000.
4. That $20,000 be transferred to Employés' Bonus Account.
5. That the balance of $92,599.26 be carried forward to a new account.

DETAILS OF GIANT RUBBER TRUST

Negotiations are under way for the formation of a world-wide rubber trust by the consolidation of the United States Rubber Company and the International Rubber Company, which control vast sources of raw product in Mexico and the Congo. Colonel S. P. Colt, president of the United States Rubber Company, says committees have been appointed by the two concerns to consider terms of consolidation. Already the United States Rubber Company is the largest manufacturer of rubber goods in the United States and recently acquired control of the Rubber Goods Manufacturing Company, and also has acquired control of the distributing agency in Europe.

The Inter-Continental Rubber Company, through its ownership of the American-Congo Company, has acquired from a Belgian syndicate concessions for many thousands of square miles of rubber lands in Africa. In this company are represented the interests of King Leopold of Belgium, Rockefeller, Thomas F. Ryan, the Guggenheims, and other millionaires who have already sent an expedition to the Congo to develop not only rubber lands but the mineral deposits of the concession. One subsidiary concern of the Inter-Continental Company controls refining plants and extensive rubber lands in Mexico, and also owns a secret process of extracting rubber fluid from a Mexican shrub.

The combined capitalization of the companies is $162,000,000. The intention, if a merger is accomplished, is to issue securities amounting to not less than $150,000,000.

NEW STRAITS COMPANY

The well-known firm of Messrs. Paterson, Simons and Co. has been registered as a limited liability company with a capital of £300,000 in £100 shares (1,500 ordinary, 800 preference, 400 convertible "A," and 300 convertible "B.") The new company will acquire the businesses of Paterson and Simons and Paterson, Simons and Co., general merchants, of London, Singapore, Penang and elsewhere, and the undertaking and assets of the Paterson Simons Land Company, Limited, incorporated under the laws of the Straits Settlements. The signatories are:—H. M. Simons, 10 and 11, Lime-street, E. C.; W. H. Shelford, 10 and 11, Lime-street, E. C.; W. McKerrow, 10 and 11, Lime-street, E. C.; A. H. Drew, 23 Austin-friars, E. C.; F. S. Wilson, 10 and 11, Lime-street, E. C.; G. Batchelar, 10 and 11, Lime-street, E. C. (one ordinary each). There is no initial public issue. There is not to be less than two nor more than five directors, subject to right of E. W. Paterson to become an additional director if holding 100 shares. First directors: H. M. Simons, W. H. Shelford, G. Paterson, W. McKerrow, and A. H. Drew. Qualification during first year, one share; afterwards £3,000 shares or stock (managing director, £10,000 shares or stock). The remuneration will be: A. Drew, £300 per annum; others £500 each per annum; (chairman £500 extra). Offices, 10 and 11, Lime-street, E. C.—*Malay Mail.*

BURMA RUBY MINES

The report of the directors of the Burma Ruby mines shows a profit for the twelve months ending 28th February, 1907, of £21,979 8s. 7d., from which the percentage payable to the Government of India, amounting to £6,818, 10s. od., has to be deducted. This leaves a net profit of £15,195 18s. 7d., which added to £9,229 19s. 10d. brought forward from last year, makes a total balance of £24,389 18s. 5d. The directors recommend the payment of a dividend of 1s. a share, free of income tax on the ordinary shares of the Company for the year ending the 28th February. This will absorb £14,950, leaving a balance of £9,439 18s. 5d. to be carried forward.

During the year 1,890,944 trucks of ruby earth were washed, at an average cost of 7.7d. per truck, as compared with 1,773,129 at 8.4d in the previous year. The truckage was divided between five washing mills, each mill having two main pans and a safety pan. The Mogok Valley drainage tunnel has progressed very favorably, in spite of unexpected difficulties in the character of the rock causing some delay. 4,000 ft. have already been driven, leaving 1,400 ft. which it is calculated will be completed December next. The amount of royalties received from native miners was £18,185 6s. 8d. as compared with £12,595 9s. 4d. last year; but, under a provision of the new lease, the Government takes 30 per cent of any royalties collected in excess of the sum sufficient to pay the rent of the Mines.

The directors have addressed the Secretary of State, soliciting a reduction of the percentage of net profits (30 per cent) now paid to the Government, on the ground that it has received nearly three times the amount of the dividends that have been paid to the shareholders since the formation of the Company.—Rangoon *Times.*

LESSONS IN ESPERANTO

(The growing interest in the study of Esperanto in all parts of the world indicates that it has come to stay. At the earnest request of a large number of Esperantists throughout the Far East the FAR EASTERN REVIEW is publishing, starting from last edition, a series of lessons in this modern international language which, when completed, will give the student a practical knowledge of the idiom of this new means of intercourse.) For more elaborated definition we recommend the student *Grammar and Commentary of the International Language Esperanto* by General George Cox, BA, price 2s. 6d. post free 2s. 9d. (British Esperanto Association, 13 Arundel St., Strand.)

LESSON II

SUFFIXES.

-*ad*—denotes *duration and continuation of action*: *pafo*, a shot. *pafado*, shooting. *rigardi*, to look at. *rigardadi*, to view.

-*aj*—denotes *concrete ideas*. *mola*, soft. *molajo*, soft material. *amika*, friendly. *amikajo*, a kindness.

-*an*—denotes *an inhabitant, member or partisan*: *Londono*, London. *Londonano*, Londoner. *Kristo*, Christ. *Kristano*, a christian.

-*ar*—denotes *a collection of things*: *vorto*, a word. *vortaro*, a dictionary. *arbo*, a tree. *arbaro*, a forest.

-*cj*—denotes *masculine affiectionate diminutives*: *Josefo*, Joseph. *Jocjo*, Joe.

-*ebl*—denotes *possibility* (*engl. able,-ible*): *vidi*, to see. *videbla*, visible. *kredi*, to believe. *kredebla*, credible.

-*ec*—denotes *abstract ideas*: *mola*, soft. *moleco*, softness. *amika*, friendly. *amikeco*, friendship.

-*eg*—denotes *enlargement, intensity of degree*: *domo*, a house. *domego*, a mansion. *varma*, warm. *varmega*, hot.

-*ej*—denotes *place allotted to*: *lerni*, to learn. *lernejo*, school. *kuiri*, to cook. *kuirejo*, kitchen.

-*em*—denotes *propensity or disposition*: *babili*, to chatter. *babilema*, loquacious. *kredi*, to believe. *kredema*, credulous.

-*er*—denotes *one object of a collection*: *mono*, money. *monero*, coin. *sablo*, sand. *sablero*, grain of sand.

-*estr*—denotes *a chief or leader*: *sipo*, ship. *sipestro*, captain. *regno*, state. *regnestro*, ruler.

-*et*—denotes *diminution of degree, &c.*: *lago*, lake. *lageto*, pond. *varma*, warm. *varmeta*, lukewarm.

-*id*—denotes *the young of, the descendant of*: *kato*, cat. *katido*, a kitten. *hundo*, dog. *hundido*, a puppy.

-*ig*—denotes *causing something to be*: *morta*, dead. *mortigi*, to kill. *bruli*, to burn *bruligi*, to set on fire.

-*ig*—denotes *the action of becoming*: *ruga*, red. *rugigi*, to blush. *fluida*, fluid. *fluidigi*, to become fluid.

-*il*—denotes *a tool or instrument*: *bori*, to drill. *borilo*, a gimlet. *razi*, to shave. *razilo*, a razor.

-*ind*—denotes *worthiness*: *admiri*, to admire. *admirinda*, worthy of admiration. *memori*, to remember. *memorinda*, memorable.

-*ing*—denotes *holder into which one object is put*: *plumo*, pen. *plumingo*, penholder. *kandelo*, candle. *kandelingo*, candlestick.

-*in*—denotes *feminines*: *onklo*, uncle. *onklino*, aunt. *koko*, cock. *kokino*, hen.

-*ist*—denotes *trade, profession or occupation*: *drogo*, drug. *drogisto*, a druggist. *boto*, a boot. *botisto*, a bootmaker.

-*nj*—denotes *feminine affectionate diminutives*: *Florenco*, Florence. *Flonjo*, Flo.

-*uj*—denotes *container of material or a collection*: *inko*, ink. *inkujo*, inkstand. *mono*, money. *monujo*, purse.

-*ul*—denotes *one remarkable for some quality*: *brava*, brave. *bravulo*, a brave man. *bela*, beautiful. *belulino*, a beauty (feminine).

-*um*—*indefinite suffix playing similar role in forming words as "je" amongst the prepositions.* *plena*, full. *plenumi*, to fulfil. *vento*, wind. *ventumilo*, fan. *kruco*, cross. *krucumi*, crucify.

FORMATION OF WORDS

If several roots (or roots with affixes and grammatical terminations) express one idea, they are written as one.

For the sake of greater clearness to learners they are sometimes separated by small strokes: —*Mal'fort'ec'o, bedaur'ind'e, facil'ig'i, kre'int'o.*

Though forming one idea these words are composed of several parts, which must be looked for separately in the vocabulary.

You will very soon know the grammatical terminations, prefixes and suffixes by heart.

Then all you have to do is to eliminate them from the word to be deciphered and to consult the vocabulary for the fundamental root left.

Mal'fort'ec'o—You will find *'ec'* denotes *abstract qualities, o ending of noun, mal' opposites*, and *fort' strong*. Therefore *forteco = strength, malforteco = weakness*.

Bedaur'ind'e—You will find *'ind'* denotes *worthiness, 'e ending of advebs, bedaur regret.* Therefore *bedaurinde = regrettably.*

Facil'ig'i—'ig' to cause to be, 'i ending of infinitives, facil' easy. Therefore *faciligi = to facilitate.*

kre'int'o—kre' to create, 'int ending of past participle active, 'o ending of substantives. Therefore *kreinto* = creator.

There are some roots in the Vocabulary, which are not marked with an apostrophe, indicating that they can be used without grammatical endings. They are mostly conjunctions, adverbs, prepositions, pronouns or particles.

EXERCISES.

1

*La patr'o est'*as *tre bon'*a. *Mi vid'*is *grand'*a n
The father is very good. I saw a great
hund o'n *en la garden'o*. *Mi parol'*os *hodiau*
dog in the garden. I shall speak to-day
*al mi'*a *patr'o pri la libr'o*. *Don'u al mi la*
to my father about the book. Give me the
*libr'*et'o n. *La bird'o'j hav'*is *nest'o'j'n en la*
booklet. The birds had nests in the
arb'o'j. *Ven'u al mi hodiau vesper'e*. *Cu vi*
trees. Come to me to-day evening. Whether you
*dir'*as *al mi la ver'o'n*? *La dom'o aparten'*as
tell me the truth? The house belongs
al mi. *Sinjor'o Petr'o kaj li'a edz'*in'o *tre*
to me. Mr. Peter and his wife much
*am'*as *mi'a'j'n infan'o'j'n*.
love my children.

2

*Cu vi jam trov'*is *vi'*a n *horlog* o'n? *Mi gin*
Have you already found your watch? I have
*ankorau ne serc'*is; *kiam mi fin* os *mi'a'n labor'o'n*,
not yet looked for it; when I (shall) have
*mi serc'*os *mi'a'n horlog'*o n, *sed mi*
finished my work, I shall look for my watch, but
*tim'*as, *ke mi gi'n jam ne trov'*os.
I am afraid, that I shall not find it any more.

3

"Simpla, fleksebla, belsona, vere internacia en siaj elementoj, la lingvo Esperanto prezentas al la mondo civilizita la sole veran solvon de lingvo internacia; car, tre facila por homoj nemulte instruitaj, Esperanto estas komprenata sen peno de la personoj bone edukitaj. Mil faktoj atestas la meriton praktikan de la nomita lingvo."

TRANSFORMING SINGAPORE

In less than a decade Singapore will be alive to its new surroundings, says the *Straits Times*. The Singapore of that day will have forgotten almost the old approach to Cavenagh Bridge as it drives over a beautiful road at the back of the Victoria Memorial Hall and out between the Government Offices and the new theatre.

First and foremost of the many improvements now being carried out by the Government is the Teluk Ayer reclamation scheme, which is to add such a vast extent of building area to the city off the present waterfront.

Improvements that are to be effected in the vicinity of the Government offices will completely change the present aspect of the approach to the commercial centre of the city. There is the new bridge, of 200 feet span, to be constructed across the mouth of the Singapore River. This bridge will lead on to the reclamation already made by Government on the east side of the General Post Office, the Master Attendant's Office and the Singapore Club. This will necessitate the removal of the present drill hall, and its re-erection on the Beach Road reclamation, at a cost of about $16,000. In view of the new bridge, the Tramway Company intends connecting its town service with that of Tanjong Pagar. This improvement will also necessitate the cutting off and setting back of a portion of Johnston's Pier, and the removal of a corner of the Esplanade opposite the Hotel de l'Europe, besides widening the roadway between the Victoria Memorial Hall and the Cricket Club.

The corner of the compound opposite the Supreme Court will be done away with so as to permit of the road at the rear of the Victoria Hall being widened, in order that vehicular traffic may pass along and out between the Government Offices and the back of the new theatre.

In this neighborhood, also, much will be eventually done to perfect a system of supplying the streets and flushing the drains of the city with salt water. It is proposed to put down pumps on the spit at the mouth of the Singapore River to supply salt water to a tank to be erected on Fort Canning, and then distribute it by pipes in the town. In Hill Street, at the foot of Fort Canning, just opposite to High Street, the Municipality propose constructing the Central Fire Station.

But by far the largest improvement which the Commissioners have on hand is the scheme for ensuring to Singapore an adequate supply of water. They intend impounding the waters of the Kallang River. It will be filtered and afterwards turned into a clear water tank, and thence gravitated to the pumping station in Mackenzie Road. The second part of this great scheme provides for tapping the water of the Selitar River.

In addition to these vast improvements, from 2½ to 3 acres of filter beds are being built in Cavenagh Road for the purpose of filtering the whole of Singapore's water supply. At present, the municipality are filtering about only 40 or 50 per cent of the supply. It is hoped to eventually filter every gallon that is used in Singapore. And in connection with the scheme of water supply it is not without significance—as tending to show that with improved hygienic conditions the beautifying of the neighboring country is not overlooked—to know that the Commissioners are planting trees over the catchment area where none have hitherto existed.

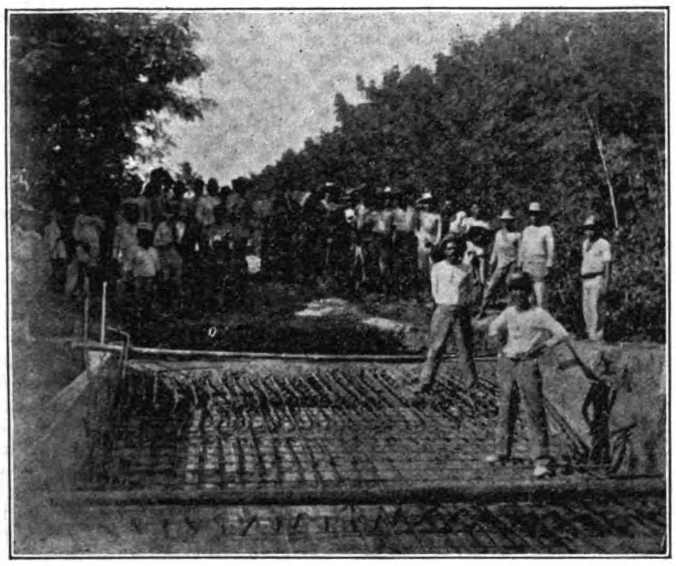
AUSTRALIAN STEAMSHIP SERVICE

A recent movement in shipping circles of considerable importance is reported by Consul-General J. P. Bray, of Melbourne, as follows:

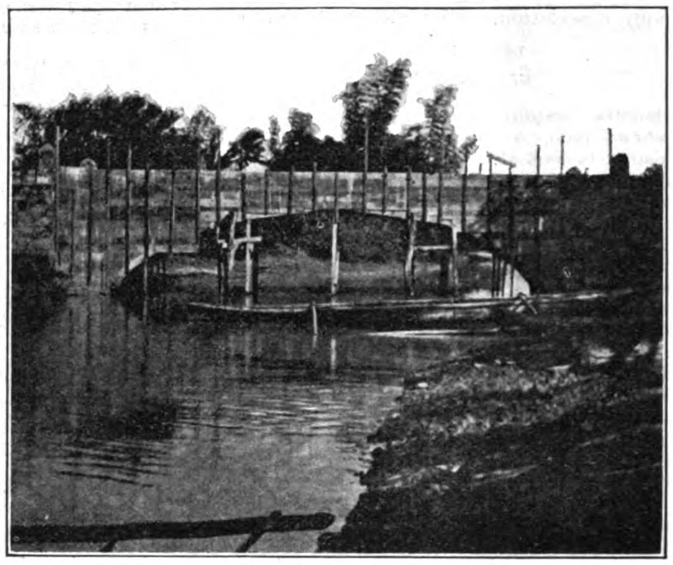
The new United Tyser Line, an organization comprising the Tyser Line, the German-Hansa Steamship Company, and the German Australian Steamship Company, will dispatch steamers (whether full or otherwise) on advertised dates every three weeks from New York for the following Australian ports, viz, Freemantle, Adelaide, Melbourne, Sydney, and Brisbane, and to ports in New Zealand. The first vessel to inaugurate the service was to be the Hansa steamer Trautenfels on April 20 for Freemantle, Adelaide, Melbourne, Sydney, and Brisbane, followed by the Hawke's Bay on May 11 for Melbourne and Sydney, and Auckland, Wellington, Lyttleton, and Port Chalmers, in New Zealand; then by the Itzehoe on June 1 for Australian ports, and thereafter by vessels and dates to be advertised.

PERMANENT ROAD, BRIDGE AND BUILDING CONSTRUCTION IN THE PHILIPPINES

Insular, provincial, and municipal funds exceeding one million pesos have been appropriated during the past year for the execution of road, bridge, and building construction under the direction of the Bureau of Public Works. Work of sufficient magnitude is being crowded forward to demand the entire time and best thought of the executive head of that Bureau, Mr. J. W. Beardsley.



REINFORCING METAL IN PLACE ON SPAN READY FOR THE CONCRETE



MANDALOYAN BRIDGE BETWEEN BACOLOD AND TALISAY, NEGROS, 60 FOOT SPAN AND 160 FEET OVER ALL, REINFORCED CONCRETE

Recent improvement in the financial condition of most of the provinces, the reduction in the cost of such material of construction as cement, steel and timber, the increase in the efficiency of the district engineers, and a general desire on the part of the provinces for permanent public works have done much to overcome the difficult and perplexing problems involved in meeting the needs of the provinces for extensive construction work.

The one element necessary above all others for the economic development, for the bettering of the condition of the provincial, is the highway. The one element necessary for this construction is the labor. The Road Labor Law was designed to furnish this labor. Since the forced abandonment of this one logical and practical means of road work, extensive projected road systems have necessarily been reluctantly abandoned or redrafted to fall within such appropriations as could be obtained from the Insular or Provincial Government.

Supervision, a vital point in road construction, has long been conceded in the States to be best executed by the government. Town or County charge has not given satisfaction. The Provinces have government supervision. With road building materials in abundance, the refusal on the part of local interests to grant the one remaining requisite, labor, is inexplicable to the practical economist. The municipalities may have government supervision upon request.

Roads now under construction were projected with few exceptions, before the location of the new railway lines was determined upon. Future projects in the vicinity of the new lines will assume more the character of feeders to the railway wherever transportation costs will be reduced thereby. It is believed that the railway management will appropriate such a system of construction and will grant some mutual concession to the province or municipality building such feeders.

A policy closely following California road and bridge practice is carried out where possible. "A road once accepted and used as a public highway must be maintained in condition for safe use until legally abandoned. If a highway crosses a stream and a bridge is built to provide for such crossing, the structure becomes part of the highway and must likewise be kept in condition at all times for safe, reasonable use, and, if worn out or destroyed by accident, must be replaced."

In preparing comparative road and bridge costs, the first cost, sinking fund and maintenance are considered. Where the deterioration of materials is as rapid as in the Philippines, the maintenance is of such importance as to render the more permanent types of construction a better economy even in many cases where the first cost appears high.

Permanent bridge structures, desirable at all times, are especially indicated by local conditions, but the most cursory examination of the assets of the average province shows the impracticability of making the use of this type of construction the invariable rule. Act 1617 provides for toll systems and under certain conditions will aid in cases where the province or municipality is able to advance the first cost. Bonds if issued would distribute the expense more uniformly over those benefited.

In view of the importance of this subject to the welfare of the Islands, it has been suggested by the Director of Public Works that a road committee be designated by the Honorable, the Governor General, comprising a representative of the office of the Attorney General, and of the bureaus of Agriculture, Posts, Constabulary, and Public Works, with power to secure assistance from provincial officials, and instructed to draw up a proposed road system for the various provinces; to draft for the consideration of the Commission regulations defining the conditions under which provinces may secure insular funds and the obligations of provinces receiving such funds, and to examine existing laws and suggest such amendments as may be deemed expedient to meet these conditions, and to attain to a uniform development of roads and an equitable apportionment of the cost of construction between the Insular Government and the provinces and municipalities interested.

The money expended on road work has had a more far reaching effect and influence upon the inhabitants than that expended through any other channel. It is more uniformly distributed among the people. It disseminates a broader knowledge of modern methods of work. It brings the American and the Filipino into closer relationship and knowledge of each other. It is anticipated that the knowledge of tools and methods will be applied in the agricultural regions and will lead to an increased demand for American machinery and tools.

Some idea of the extent of the work being accomplished by the Bureau of Public Works of the Philippines may be gathered from the report of the completed construction and that contemplated and undergoing construction from January 1st, 1907, to March 31, 1907. This is given by provinces as follows:

Province of Cagayan del Norte: Bridge at Aparri steel Pratt truss, wooden floor and stringers 2-20′ wooden stringer spans and 1-100′ steel span. The total cost with approaches was ₱13,000. This amount was appropriated from the municipal funds of Aparri. The bridge was completed early in the year.

Two steel bridges are being constructed at Amulung at a cost of ₱16,000 to be paid from provincial funds.

Buildings—A provincial building to cost when completed ₱30,000 is now under construction at Tuguegarao together with a trade school at the same place to cost when completed ₱22,000.

Besides this construction there is a municipal building at Amulong costing ₱2,500 and a complete drainage system for Tuguegarao, costing ₱5,000, underway. In all for Tuguegarao, province of Cagayan, the outlay for permanent improvements is approximately ₱80,000.

Province of Ilocos Norte.—Bridges-Apatot River Bridge, 66′ span, through Howe Truss, 45 intersection now under construction to cost ₱3,971.71 and three bridges 10′ to 11′ span, cost ₱3,200. This construction is paid for by the province. At Laoag a presidencia and a market costing ₱3,000 have been completed and the sum paid from municipal funds.

Besides this there are now in course of construction a schoolhouse at San Nicolas, a schoolhouse at Paoay, a central schoolhouse at Laoag and schoolhouse at Dabala,

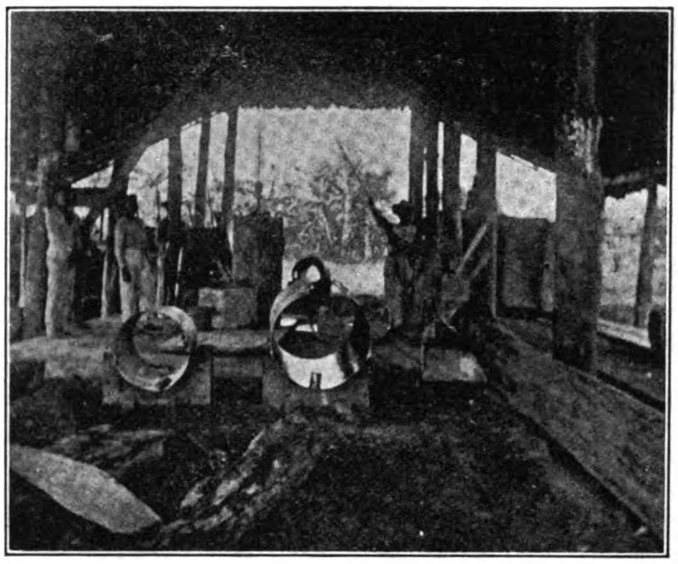
Pasuquin, San Miguel, Dingras and Salsona, besides a presidencia each at Bangui and Dingras. These buildings will cost, when completed, ₱23,000 and will be paid for by the several municipalities.

In the province of Ilocos Sur, including improvements completed and under construction, approximately ₱50,000 will be expended. This construction includes 11 small stone bridges; one 50′ span bridge and one 63′ span bridge, all of which have been completed. A steel bridge costing ₱3000 is now under construction at Candon.

In the Province of Laguna ₱64,500.00 have been expended in road construction alone. At Cabuyao concrete bridge with 26′ span has been completed at a cost of ₱4490.00 and 49 concrete culverts upon which ₱19940.00 have been expended.

Twenty-one re-inforced culverts have been completed in Cavite province and a 125′ steel truss bridge at Manola is in course of construction.

Rizal province has the benefit of 24 re-inforced concrete culverts and a re-inforced bridge recently completed at a cost of ₱7,600.00



INTERIOR OF CULVERT PIPE FACTORY AT PROVINCIAL JAIL, BACOLOD, NEGROS

Among the buildings completed in this province is the provincial trade school at Vigan, which cost ₱16,600.

The buildings under construction are a presidencia and schoolhouse each at Candon and Santa Lucia, a schoolhouse at Magsingnal and a trade school at Lagangilang, all from municipal appropriations and costing ₱20,450.

The province of Pangasinan is expending a large sum of money in the construction of permanent roads and bridges. About ₱10,000 have been expended on the Dagupan-Benguet road and the Dagupan-Lingayen road together with the construction of 40 re-inforced concrete culverts. Included in the appropriation from the province is the cost of construction of the San Jacinto bridge, segmental arch of reinforced concrete. The work on this bridge is now under way and will cost when completed about ₱9823.00. A similar bridge is also under construction at Manaoag which will cost ₱9527.00. A presidencia at Binanolan has been built by the municipality at a cost of ₱2500.

In the province of Pampanga ₱2366.00 has been expended in road construction, and ₱14,300 in the construction of two wooden trestles and seven concrete bridges.

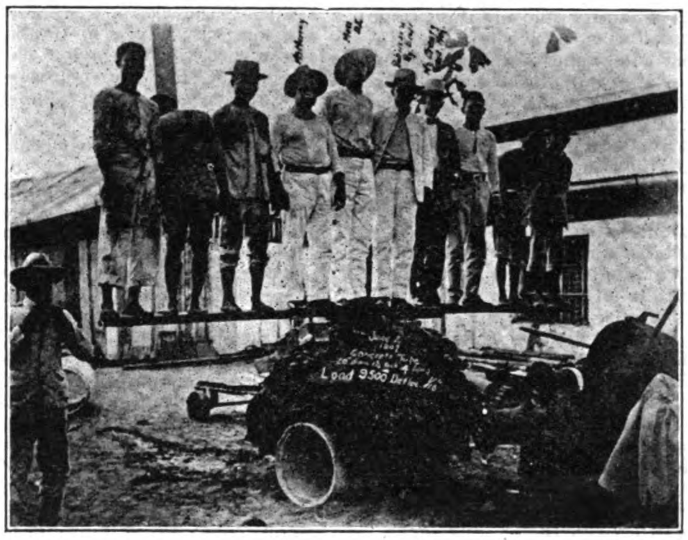
In the province of Bulacan eight concrete bridges have been completed at a cost of ₱9125.00 and ₱43,100 have been expended in the completion of public buildings in the province. These buildings include the provincial high school, the high school dormitory the constabulary barracks and the constabulary officers' quarters at Malolos.

In the province of Tarlac, the dyke at the capital in course of construction will cost, when completed, ₱33,675.91. In addition to this work one wooden bridge has been completed and some new roads constructed.

In the province of Nueva Ecija four miles of the Aliaga-Cabanatuan Road has been completed together with ten re-inforced culverts and two timber bridges 40′ to 50′ spans respectively. There are also three small culverts in the course of construction. An industrial school is being built at San Isidrò, the capital.

while a provincial jail to cost ₱7,000 and a market at Pasig to cost ₱10,000.00 are in course of construction.

In Tayabas province there has been unusual activity in bridge construction. On the Sariaya-Tiaong road eight concrete arches have been completed; on the Antimonan-Gumaca road three wooden trestle bridges, 56′, 106′ and 162′ respectively with rubble walls in cement, yacal stringers and floors



TEST OF CONCRETE TUBE MANUFACTURED AT PIPE FACTORY

completed; on the Lucena-Sariaya road nineteen concrete arches and on the Pagbilao-Antimonan road thirty concrete arches, six wooden bridges have also been reported completed.

In the province of Batangas one concrete culvert has been completed and one ten meter stone arch is in course of construction.

The province of Albay has the benefit of six miles of good road from Tobaco to Tiui.

A high school in the province of Sorsogon is in course of construction.

A municipal building in Iriga, Camarines, is being constructed.

In the province of Samar ₱29,400.00 have been expended in road construction and ₱24,-coo are being expended in the erection of oonstabulary barracks.

The province of Iloilo has the benefit of 21 reinforced concrete bridges, culverts, and arches together with a 100′ trestle on concrete foundation completed at a cost of ₱18,-758.00. In addition to this important work ₱79,880.00 are being expended in public buildings including a provincial school, an intermediate school and an arts and trades school completed and a provincial jail now in course of construction.

In Occidental Negros three re-inforced bridges have been completed and three more are in course of construction. A provincial trade school and a provincial high school are also being built.

In Cebu 12.3 miles of the Cebu-Toledo road and 3.43 miles on the Barili-Aloguinsan road have been constructed.

In the province of Oriental Negros a school building is being erected at Dumaguete.

A school building is being erected at Tagbilaran, Bohol.

In Suragao a high school and shops are being erected at a cost of ₱32,000 and a hardwood trestle bridge was recently completed.

NEW PUBLICATIONS

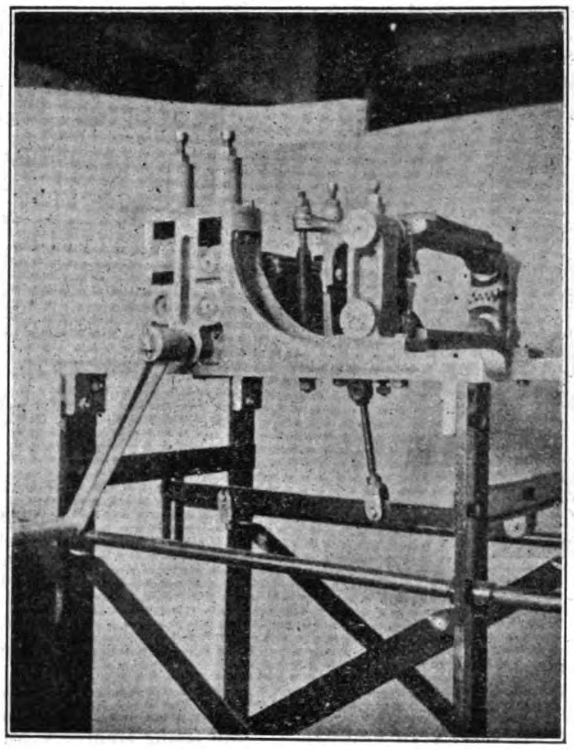
The Colonial Monthly, Messrs. Frizzle & Woolley, Publishers, Manila, P. I.—This addition to the publications of the far east was issued last month. Its initial issue contains an interesting article on Albay's Vesuvius and Pompeii, by Governor Charles Andrew Reynolds, giving the history of the famous Mount Mayon volcano, besides fresh and enlivening comment on local Philippine topics. Among the other contributors are Rollie Monroe Woolley, James Wilson Day, and Miss M. M. Norton, the Philippine poetess.

In addition to the local contributions the magazine contains seventy-two pages of interesting syndicated articles by contemporary writers covering the departments of fiction, adventure, etc.

The Philippine *Journal of Science* for June contains an interesting article on "The Asbestos and Manganese Deposits of Ilocos Norte, with Notes on the Geology of the Region," by Warren D. Smith, acting chief of the Bureau of Mines, and "The Ascent of Mount Halcon, Mindoro," another article from the pen of Elmer D. Merrill of the botanical section of the biological laboratory, Bureau of Science.

THE DAILEY MANILA FIBRE CLEANING MACHINE

The illustration shows a patent hand-power machine for decorticating or removing the fiber from the abaca, or Manila leaves, after the tree has been cut down and the leaves stripped from same, and which furnishes the commercial article to-day of which Manila rope is made, namely, Manila hemp. This machine was invented by C. E. Dailey, Cordage-Mill and Rope Expert of 82-92 Beaver street, New York City, N. Y.



THE DAILEY MANILA FIBER CLEANING MACHINE

It might be well to give a description of the abaca or Manila hemp tree as it is found in the Philippine Islands to-day, and no other place in a commercial quantity or of the same strength. The seed has somewhat the appearance of our horse chestnut that drops to the ground in the fall of the year. This is placed in beds of rich soil and set under glass (similar to our garden truck as raised in the hothouse in early spring). After probably six to eight months they send out what are called "suckers" which grow about a foot to twenty inches high; they are then taken out of the hotbed and put out in the field to take root and grow in the open air, which usually takes from three to five months according to location, and condition of weather. In about one or two years it is about the proper height for cutting, or from twelve to eighteen feet high and six to fifteen inches in diameter at the cutting point, which is about six to ten inches from the root. At the top of each tree are long broad leaves. Cutting the trees is done with a knife called the "bolo" which is also the handy knife of the native. The trunk of the tree is cut with a slanting blow, after which the leaves are lopped off and then the outer leaves, or as they call them, "envelopes," are removed and the leaves are then taken off, split in two and spread on the ground where they lie for probably one to three days. This is done so that the leaves will clean easier, as the native has to pull the leaves under his crude knife affair to obtain the fiber. On account of the leaves staying on the ground for the time necessary for them to soften, decomposition sets in, caused by the tannic acid which turns the leaves brown and weakens the fiber. If the leaves are cleaned as soon as they are cut from the tree the fiber will all be white. In cleaning, the native will pull one or two strips of leaves under his knife, of about an inch wide each. The strain in pulling the leaves under the knife is very severe, and in a great many cases causes internal troubles. For an ordinary family of say five, the native will obtain about sixty pounds of good fiber, and from this up to one hundred twenty-five pounds per week. About 850,000 people are employed in the Philippines in the cleaning of Manila fiber, including men, women, and children. Last year, or 1905, they cut, cleaned, and baled 270,000,000 pounds of fiber. A bale will weigh 270 pounds. This fibre is sold according to grade and strength. Clean white fiber will bring from one and a half to two cents per pound more or above current, which is the standard grade. This is one of the reasons why buyers of Manila rope have to pay from two to two and a half cents more per pound for pure white bolt rope. It is the cheapest in the end as the hemp is of the best and is stronger.

It is proposed and has been proven, that with Mr. Dailey's machine there will not be any brown fiber coming from places where this machine will be used, as the machine cleans best when the trees are cut fresh. All the fiber cleaned with this machine will be white and strong if cleaned within five hours of stripping the tree, and will do at least one hundred pounds of dry, white fiber per day, and can be operated by women and young men, while with the present hand-method it takes a good, strong, full-grown man to clean the fiber.

This fiber cleaning machine weighs 172 pounds, is 26 inches long, 18 in. wide and 44 in. high; has two handles to be operated by two people. It can be carried about from place to place whether in field, woods, mountain side, in fact anywhere the trees are. Is made of aluminum, composition, and steel. Has very few working parts, very strong and interchangeable, and no parts to get out of order.

Besides the white fiber and the strength of same, there is another thing to be considered with Mr. Dailey's machine and that is the saving of the tannic and also parabolic acid contained in the abaca trees. There is estimated to be in the trees about 20 per cent of tannic acid and about the same of parabolic, which is used a great deal in photography. If this is the case as it looks to be, these acids, which have heretofore been lost or let go back into the ground, can be saved with this fiber cleaner by adding a receptacle to save these acids, and which can be set to one side, and the water contained therein will evaporate and leave the acids in dry powder form which can be put in cases, barrels, etc. and shipped here and to other countries at a very good profit and at small expense. This looks as if Manila hemp had by-products, as there is only from one and a half to three per cent in each tree of good white fiber, at its market value to-day of about 12 cents, which is as nothing compared to the prices of good tannic and parabolic acids, which is used in the former case for tanning leather, and in the latter for photo work.

It looks as if Mr. Dailey's invention will open up new industries in our Island possessions, and also produce a higher grade of Manila hemp, which means to the users of Manila rope a much better grade, whiter in color, cheaper rope and cleaner rigging. This will also do away with the adulteration of ropes.

This machine will be a great help to the grower of Manila hemp and also to the employees from a humane standpoint on account of the exertion necessary in the cleaning of the fiber to-day by the crude hand method of doing it.—*American Shipbuilder.*

KOREAN IMPROVEMENTS

Almost five million yen were expended in public improvements in Korea in 1906, according to the report of the resident general, and were distributed as follows:

	Yen.
Reconstruction of roads	1,496,000
Chemulpo Waterworks	1,000,000
Extension of Educational System	500,000
Subsidy to Agricultural and Industrial Banks	800,000
Pyeng-yang Waterworks	500,000
Construction of hospitals	200,000
	4,496,000

These public works will be continued and the following program has been arranged for by the Japanese for the fiscal year:

RECONSTRUCTION OF ROADS.

"It requires no explanation to say that the nature of the roads has a most important bearing on the military, agricultural, and commercial interests of a country. It so happens that the roads of Korea are, as a rule, in such a condition of neglect and ruin that they are totally unfit for horse and traffic. Some of them were more or less improved during the Japan-China war, and also during the late war, but such improvements, having been the result of the necessities of the campaigns, were necessarily confined to only small portions of the roads in general, and are far from satisfying the need for accommodating the transportation and communication traffic of the country at large. It has hence been decided to use the amount appropriated, namely 1,500,000 *yen*, in cutting and laying the following four main roads:—

"1.—Road running through Yon-San-Kang (river) Valley to Mok-po. 2.—Road between Tai-ku and Yan-il Bay, by way of Kyang-Jyu. 3.—Road between Chinnam-po and Won-san, via Pyeng-yang. 4.—Road running through Keun-Kang (river) Valley to Kun-san.

"These four roads, when made fit for traffic, will traverse a region of great promise in Korea, connecting them with its principal harbors and railway centres. Surveying is now in progress for all these roads. As to tributary roads branching from these main highways, it need hardly be said that their improvement is urgently desired; but it is quite impracticable for the national exchequer of Korea to bear the whole of the expense that would be involved. Consequently, the course now adopted is for the exchequer to supply a portion of the money required, and to make a levy on the people of the localities destined to be directly benefited.

WATERWORKS

"The cities and towns of Korea are, as a rule, lacking in supplies of drinking water which, where existing, are generally of very inferior quality. The dangers the people must face in consequence of this are very serious in times of epidemics. The construction of waterworks to supply the municipal inhabitants with wholesome drinking water is thus one

of the most urgent of sanitary measures that Korea stands in need of, and especially is this the case in a port like Chemulpo, where the population, like its trade, is yearly increasing, and where the absence of waterworks makes it impossible for ships to obtain full supplies of drinking water. Such being the state of things, the Korean government, in compliance with the resident general's advice, decided lately to lay water mains in Chemulpo at an expenditure of 2,300,000 *yen*, with the double object of promoting the development of the place as an open port on the one hand, and on the other of creating a new source of revenue for the national exchequer by running the waterworks on business principles. For this purpose, the bureau of waterworks has already been instituted in the department of finance, while the work of surveying the town is now being carried on with dispatch. In Pyeng-yang, the peculiar geological formation makes it unfavorable for well sinking, and its inhabitants are in the habit of using the water of Tadong river for drinking purposes. In view, however, of the great and rapid increase of the population of this city, it has been deemed necessary for the town to have its own water supply, and, as in the case of Chemulpo, the Korean government has decided to build at Pyeng-yang a waterworks, as an official undertaking, at an outlay of 1,300,000 *yen*. Surveying is now proceeding under the direction of the waterworks bureau. Fusan, the key of the intercourse, so to say, between Japan and Korea, also wants a waterworks, and the work of laying mains was started last year, as a joint undertaking, the Korean government bearing part of the outlay to the extent of yen 350,000 and the local Japanese residents contributing yen 1,170,000. Why a similar plan has not been adopted for the national capital, which is noted for its bad water, is because the Korean government has forfeited its right to conduct a waterworks in Seoul, having some time ago granted such a concession to a foreign concern."

PHILIPPINE GOVERNMENT CONTRACTS

The contract for the supplying of 35,000 yards of khaki cloth for the Philippine Constabulary was awarded Messrs. Findlay & Co. of Manila. They will supply Stockport at 38 centavos a yard.

The contract for khaki blankets for the constabulary was awarded Messrs. Castle Bros. Wolf & Sons. The price is ₱2 each.

Bids were opened at the office of Major Shields, Insular Purchasing Agent, for supplying the Insular government with native lumber including amuguis, dungon, guijo, red lauan, molave, narra and tindalo of various dimensions and quantities on August 3.

The following tenders were received: price per thousand feet:

John Gibson: amuguis ₱124.00; dungon ₱200.00; guijo ₱124.00; molave ₱200.00; yellow narra ₱180.00;

C. B. Williams: amuguis ₱136.50; dungon ₱210.00; guijo ₱147.00; red lauan ₱89.25; molave ₱252-00; yellow narra ₱189.00; tindalo ₱231.00.

Hermailumally? 15 Plaza Moraga: amuguis ₱145.00; dungon ₱240.00; guijo ₱185.00; molave ₱265.00; yellow narra ₱240.00; tindalo ₱260.00.

Manila Saw-mill Company: amuguis ₱135.00; dungon ₱195.00; guijo ₱165.00; red lauan ₱98.00; molave ₱208.50; yellow narra ₱208.50; tindalo ₱227.50.

CASTINGS.—Bids were opened August 1, by the secretary of the Municipal Board for furnishing thirty-two tons of castings for the gravity water system for the City of Manila. Messrs. Findlay & Co .tendered the lowest bid, offering castings to be made by the Hongkong and Whampoa Dock Company at Kowloon, delivery in five months, at ₱0.088 per pound and castings to be manufactured in Great Britain, delivery in six months, at ₱0.10 per pound. The bids received were as follows: Philippines Products Company, ₱0.1076 per pound, Frank L. Strong, ₱0.10 per pound, Fred Wilson & Company, ₱0.1021 per pound, Findlay & Company, ₱0.088 and ₱0.10 for castings to be manufactured at Kowloon and in Great Britain, respectively.

AMOY'S COMMERCIAL FUTURE

Consul H. L. Paddock reports that the general impression regarding trade at Amoy, China, is that it is on the decline and that in a few more years it will be nothing more than a fishing port. He reviews the trade as follows:

There is much to support this idea in considering the trade values for the past ten years, for while imports have had a steady increase, exports have remained practically stationary. The tea exports have decreased enormously, but other exports have increased. When Amoy was first opened to foreign commerce there was a large export of tea. In 1874-75 there were 7,645 386 pounds of Amoy oolong tea shipped to the United States. This was the Amoy tea alone, not Formosa teas. Subsequent to that time the export of Amoy tea proper steadily declined until in 1899 the last shipment amounted to only 31,705 pounds. Amoy tea failed on account of its coming into competition with teas of a far better grade, such as those of Formosa.

Formosan teas were at one time nearly all shipped from Amoy, but this trade has been decreasing at the rate of 1,500,000 pounds per year since 1902, and at present only about 45 per cent of the Formosan crop is shipped from here. It would seem that it only requires the development of the Keelung Harbor in Formosa to cause the entire tea-shipping industry to die. Keelung Harbor is now capable of accommodating at its piers ships 400 feet in length and of 26 feet draft, and these improvements are continuing under the Japanese Government.

SHIPPING AND TRADE HOLD UP WELL

Shipping at Amoy shows a steady increase in numbers of vessels and tonnage. This would show that some trade is being carried on here aside from the reexporting of Formosan teas. It can be said that as tea shipping decreased the exportation of paper and brown sugar has increased until they are considered as being among the largest exports of Amoy. Most of the paper is shipped to the Philippine Islands and the Straits Settlements, while the raw sugar is sent chiefly to Shanghai, Chefoo, and Tientsin. While these two exports have increased largely within the last few years, it can not be said that the increase has caused the enormous growth in tonnage and numbers of ships entering and clearing. Other reasons must be sought for this. One may be that the export of humanity in the shape of coolie laborers to the Straits Settlements has increased largely, and another reason lies in the fact that imports to Amoy have steadily increased.

Kerosene oil, flour, quicksilver, cotton cloth, opium, blankets, and cigarettes have increased wonderfully in the order named. Of these imports only the first two and the last, namely, kerosene oil, flour, and cigarettes, are from the United States. The importation of kerosene oil from America is steadily increasing. As regards the importation of American flour, the supply is insufficient to meet the demand. For the six days ending March 22 last 128 tons per day passed through the local custom-house, or 1,535,972 pounds for the six days. This is fairly indicative of the American flour trade locally.

As regards quicksilver, it is worthy of notice that in 1902 Amoy imported more quicksilver than any other port in China, and 25 per cent of the total import to China. In 1905 Amoy was second in its importation of quicksilver, Tientsin having imported more than Amoy by 53 piculs, or 7,067 pounds.

Cotton cloth is mostly imported from Great Britain; opium from Persia, and cigarettes from the United States. The last article is meeting with a heavy competition from English and Egyptian prices, but the imports from America amounted to about 40 per cent of the total imports last year and were valued at approximately $15,000 gold. These cigarettes are exceedingly low grade, but find a ready market.

THE KUALA LUMPUR ELECTRIC POWER SCHEME

The following is from the *Engineering Review*:—

This scheme is a very good example of how advantage may be taken of the presence of water power to generate electricity for lighting and power. Water is taken from the Gombak River in the State of Selangor in the Federated Malay States and utilized in turbines which drive three-phase alternators generating at 6,600 volts. Electric energy is then transmitted over a distance of about ten miles to the State Capital, Kuala Lumpur, where it is transformed down at a sub-station by means of motor generators to a continuous current three-wire distribution with 440 volts across the outer wires. In addition to this distribution three-phase current at 400 volts and 40 periodicity is used in the Government railway workshops in the city. The estimated minimum flow of water when the scheme was put in hand was 1,400 cubic ft. per minute with a head of 310 ft. The capacity of the plant, which was supplied and erected by the Oerlikon Company, is 1,200 h. p., but half of this is intended as a stand-by, and additional steam power is available in case of need. The plant has now been got under weigh and current is being taken by the Government for general street and office lighting and for the railway shops, besides which the surplus is being sold to outside consumers. Messrs. Preece and Cardew, the consulting engineers for the scheme, are to be congratulated upon its successful realization in spite of many difficulties. There would appear to be no reason why the undertaking should not be financially as well as mechanically successful now that the Government have taken the plant over and shown themselves determined to work it to the best advantage.

NEW PEOPLE'S SAVINGS BANK FOR TIENTSIN

The Tuchihpu (Board of Finance) has passed the memorial of H. E. Viceroy Yuan Shih-kai concerning the establishment of a Chu-hsu Ying-hong or Savings Bank, in the city of Tientsin for the convenience of the people in general to deposit their earnings from one dollar and upwards, partially after the regulations of foreign banks of the same standing in China.

The savings bank is established inside the official bank of Chih-li and is managed by the same staff, with a view to saving expenses for its maintenance.

This useful institution was opened in the Native City on 1st June last by order of H. E. Yuan.

It is stated that the bank is much patronized and liked by the Chinese dealers and other small business men, whose deposits have already reached the sum of Tls. 300,000 at present. As this is the first bank of its sort in North China, where the people knew nothing about it before, the business must be considered as a very good one and there is an excellent prospect before it in future.

It may be mentioned that, by sanction of the Board of Commerce and of Finance, some leading Chinese merchants at Shanghai opened the Hsing-Cheng Savings Bank at that leading Treaty port in 1905, which has been and is doing a very good business. The capital of this Mercantile Savings Bank was Tls. 1,000,000.

As the establishment of the savings bank is for the convenience of the people, the various other viceroys and governors have been advised to do the same in their respective provinces, as soon as possible, after Viceroy Yuan's methods, so as to improve the condition of the great masses of China.—*P. & T. Times.*

BAMBOO PAPER PULP

Paper makers in India have always complained of the scarcity of material, whether of rags or of unmanufactured vegetable matter, and they still have to indent on the north of Europe for "stuff" to mix with local material. The average Indian has no old clothes to sell; they are used up in a hundred ways, and the absence of inland water carriage raises the cost of raw material frequently to a prohibitive figure.

An investigation has been conducted under the orders of the Government of India by Mr. R. W. Sindall, F. C. S., into the condition under which paper and paper pulp might be manufactured in Burma. Mr. Sindall's report has been published, and contains a full account of his experiments and observations. The Government of Burma is now prepared to entertain applications from persons desirous of establishing paper mills with a view to encouraging a new industry.

The following concessions will be granted and agreements will be concluded for a period of 21 years of which the main terms will be as follows:—

(1) No royalty will be charged on bamboos cut and utilized for the manufacture of pulp or paper within the said period of 21 years, or if charged on bamboos cut by contractors and supplied to the paper mill, it will be refunded to the owners of the mill.

(2) No royalty on manufactured paper stock will be charged for seven years, and thereafter the royalty charged will be Re. 1 per ton or such other rate as may be subsequently decided.

(3) If necessary, areas for exclusive cutting of bamboos and suitable fibrous plants will be reserved for paper mills.

(4) Suitable sites for the erection of a factory, if available, on Government land, will be granted rent free for a period of 21 years, subject to such restrictions as may be found necessary.

(5) The free use of all roads to and from such a factory will be guaranteed.

On the other hand, the company or other party to the agreement will be bound as follows:—

(1) To build a factory within two years from the date of the concession, and keep the same working at least 120 days in each year.

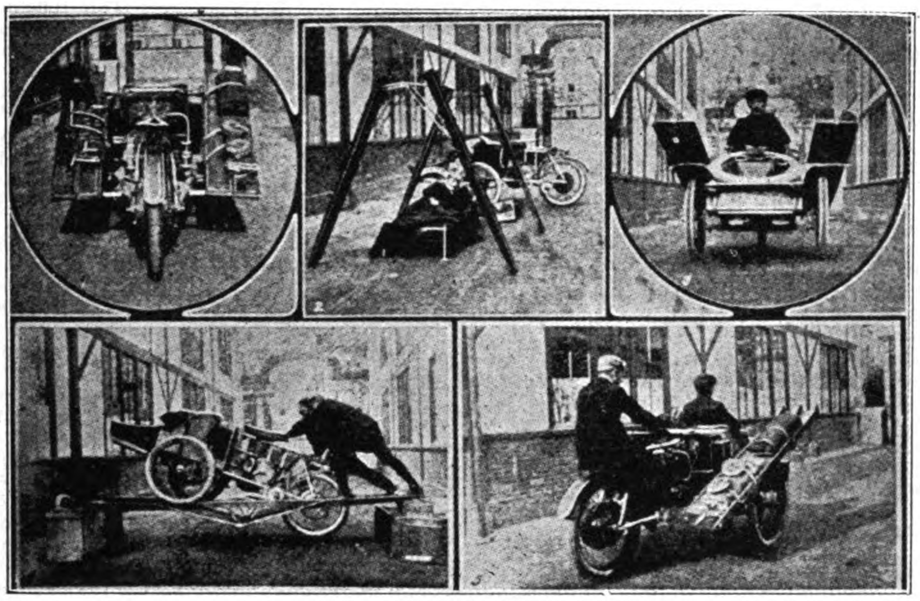
(2) To produce after the first seven years an annual output of 10,000 tons and after 14 years an output of 20,000 tons of paper-stock per year.

(3) To render monthly statements showing the output of the mill each month.

(4) To allow a full inspection of all books by the local Government. That the agreement will be considered null and void if the operations are not commenced as provided for in the terms of the concession.

Copies of the report of Mr. Sindall on the manufacture of paper and paper pulp in Burma can be purchased from the Superintendent of Government Printing, Burma.

The valuable qualities of bamboo fibre have been recognized for ages in China as a paper material, and more than forty years ago, Mr. Routledge, managing director of the Ford Paper Works, Sunderland, grew bamboo in Jamaica expressly for the manufacture of pulp. The canes were cut when they reached the height of twelve feet, as Mr. Routledge found that the gum which binds the fibre together hardened rapidly as the plant grew, and needed a more expensive process for separation. He did not follow up the enterprise, although the quality of paper he made from bamboo was excellent. Large sums have since been lost in attempts to produce paper stuff from bamboo, and about 13 years ago a Mr. Sibger came to India with the object of making paper stuff in Rangoon and obtaining his alkali from sea water by electrolysis. He had some very remarkable samples of bamboo material with him, but some element must have been lacking in his process, as no business resulted. As the chief difficulty with all experimenters has been the separation of the gum from the fibre, it is evident that a body so tenacious must have a special value, could it be separated without destruction. The length of the fibres of bamboo is determined by the distance apart of the knots; here they terminate, their ends being held together with a mass of very hard gum. So hard and tough is it that a cane has never been known to break across a joint. If this gum could be separated by means of a suitable solvent and converted into varnish or size, it might have a commercial value equal to that of the fibre. Hitherto the associated gums and silex seem to have been destroyed in the making of paper stuff.—*Indian Textile Journal.*



THE GREATEST LONG DISTANCE MOTOR RACE YET UNDERTAKEN STARTED FROM PEKING, CHINA, ON JUNE 10TH. THE COURSE LIES THROUGH MONGOLIA, SIBERIA, RUSSIA AND GERMANY, TO PARIS, THE DESTINATION. THERE WERE NUMEROUS ENTRIES. SOME OF THE CONTESTANTS HAVE RESORTED TO VERY ORIGINAL DEVICES TO HELP THEM ON THEIR WAY. ONE OF THESE, A PORTABLE BRIDGE, IS SEEN IN THE ILLUSTRATIONS. BY MEANS OF THIS THE RIDERS EXPECT TO GET THEIR HEAVY THREE-WHEELED MOTOR OVER DITCHES AND SMALL STREAMS.

1. THE PORTABLE BRIDGE FITTED TO THE CAR. 2. HOW THE MOTORISTS WILL PITCH THEIR TENT FOR THE NIGHT. 3. THE BRIDGE PACKED ON THE CAR FOR TRANSIT. 4. THE PORTABLE BRIDGE IN USE; PUSHING THE MOTOR ACROSS. 5. ANOTHER VIEW OF THE BRIDGE PACKED ON THE CAR.—POPULAR MECHANICS.

A NEW FAN FOR THE TROPICS

Consul E. H. Dennison writes that a German firm has recently introduced into Bombay a portable fan, which is propelled by a hot-air engine and which is destined to have a large sale throughout India. He particularizes as follows:

Owing to the intense heat which prevails in this country during most of the year, fans of some kind are a necessity to the comfort of Europeans, and their offices, shops, and residences are all equipped with the old-fashioned swinging screens known as "punkahs," which consist of a piece of cloth or matting stretched over a rectangular frame hung from the ceiling and kept in motion by a servant at the end of a cord. Wherever electricity is introduced these are generally superseded by electric ceiling fans.

The natural field for the hot-air engine fan would be in localities where there is no electric power, but it has been found that it can compete with the electric fan in the latter's own field, owing to the extreme cheapness of the cost of its running, which is about one-fifth of that of the electric fan.

The fan is propelled by a hot-air engine, the heat being generated by a kerosene lamp which holds about 1 quart of oil, sufficient to keep the fan running for over twenty-four hours. To the lamp is attached a small glass chimney which fits into a larger metal chimney connected with the engine. Upon the top of the engine is hung the fan, similar in shape and size to the ordinary electric fan, whose speed is governed by the size of the flame; that is, to reduce the speed the flame is turned down, and to increase it the flame is turned

up. The whole outfit weighs about 30 pounds, and sets upon a small stand, raising the level of the fan proper to that of an ordinary desk. It is fitted with handles, and can be easily moved to any portion of the room or house desired.

If American manufacturers can produce a similar article, with perhaps a few improvements and at a smaller cost, an immense field will be found for its sale, for this is not necessarily limited to India, but would include every hot country in which white people are compelled to live.

These fans at present sell for $62 each, which makes them rather too expensive to be used by any but the well-to-do. However, the manufacturer expects to soon be able to materially reduce this price with the expected larger output.

THE SPICE INDUSTRY IN THE EAST

The spice industry, in cloves, nutmegs, mace, peppers, etc., formerly flourishing in Ceylon and the Straits Settlements, etc., is now but a minor industry in the former colony but still flourishes at Penang and Singapore and in Java and the Dutch Indies, says the Straits *Chronicle*.

Cardamoms and cinnamon, however, are important Ceylon exports, as well as some pepper. The following exports of Ceylon spices we quote from the official returns:—

Product.	Exported During 1906.
Cardamoms	6,505 cwt.
Cinnamon	52,440 "
Cloves and Mace	118 "
Ginger	40 "
Nutmegs	155 "
Pepper	1,983 "
Vanilla	50 "

For cinnamon Ceylon is the chief export centre in the East, and has also a large trade in cardamoms.

Some interesting notes on the present position of industry in the Malay Peninsula and Java are given in the *Tea and Coffee Journal* (May) by Mr. W. H. Ukers, who has been making a tour of the East.

In Penang island nutmegs and cloves are again being extensively grown by Chinese cultivators, and Penang nutmegs again bid fair to stand high in the market. The nutmeg industry was ruined some years ago by disease, not only in Penang but through the Malay Peninsula as well. Pepper formerly flourished in Penang, and the output averaged 3½ million pounds per annum; but the Dutch East Indian competition proved too strong for the Penang industry; and now Singapore is taking the trade from Penang. The output of cloves is about 160,000 lb. per annum from Penang.

SINGAPORE SPICE MARKET.

The center of the Eastern spice trade is at Singapore, and the following table shows the exports from this town and Penang in 1905 in various spices:—

PRODUCT.	Singapore Exports.	Penang Exports.
Cardamoms	782 cwt.	27 cwt.
Cassia	1,844 "	209 "
Cinnamon	161 "	5 "
Cloves	3,006 "	2,220 "
Ginger	1,871 "	2,379 "
Mace	2,372 "	1,366 "
Nutmegs	15,921 "	4,698 "
Pepper (Black)	245,363 "	74,454 "
Pepper (Long)	3,786 "	
Pepper (White)	89,400 "	11,626 "

The principal sources of the various spices exported from Singapore are as follows:—

White pepper from Sarawak; best black pepper from Johore, Palembang (Sumatra) and Java; other black peppers from Acheen and Trang (Malaya); cloves, mace, and nutmegs from Penang; and nutmegs and mace also from Macassar (Celebes), Moluccas, and Sumatra.

In Java there is a considerable trade in spices; and the subjoined list gives the exports of these for 1906:—

EXPORTS OF JAVA IN 1906.

	lbs.
Cassia	959,063
Cinnamon	104,159
Cloves	145,547
Mace	1,193,684
Nutmegs	6,055,093
Pepper (white)	4,535,729
Pepper (black)	24,042,033

JAPANESE TO SPEND MILLIONS IN UNITED STATES

The Seattle *Post-Intelligencer* of June 9th announces the arrival at that port of six Japanese businessmen representing large interests in Japan who are prepared to place orders in the United States for $10,000,000 worth of machinery, armament, and raw building materials. The *P. I.* says:

"Most of the buying for the government will be done by Y. Mizutani, engineer, captain in the imperial navy of Japan. Mr. Mizutani will visit all the large foundries of the East and will make unofficial visits to many of our navy yards to see the new docking and repairing facilities in these plants. Mr. Mizutani and Mr. Gejio are the only representatives of the government in the party. Mr. Gejio is connected with the agricultural department of Japan, and has come to the United States to visit the large plantations and farms of the East and to study agricultural conditions all over the country.

"K. Kitamura is president and chief engineer of the Osaka Cement Company, Limited, and is here to purchase much machinery for the plants of his company in Japan. S. Inoue, city engineer of Kioto, will spend most of his time in studying engineering problems worked out in the large American cities, and may act as agent for his city in purchasing materials for sewers and other public improvements.

S. Fujii and J. Watanabe are engineers connected with the Kawasaki Dock Yard Company, owner of one of the most important ship yards in Japan. Their company has sent them here to make large purchases of machinery and to study shipbuilding in America.

The party was met in Seattle by Yonezo Okamoto of the American Trading Company, of New York. Mr. Okamoto will accompany them to Chicago. Among the things to be purchased will be locomotives, rails, and general railroading material.

EASTERN CABLES

A statement, which more than likely is correct, has been made that the Cocos-Batavia submarine cable has been sanctioned, that the work will be put in hand at once and the cable completed in about a year. This proposal has been under consideration for some time, and on the cable chart for 1906 the route was marked as one likely to be proceeded with at an early date. The opening of the new cable route will be of considerable interest and advantage to the commercial community of India, and indirectly it may be of advantage to Ceylon as it will give an alternative route to Perth in Western Australia and if necessary to Mauritius and South Africa. Ceylon eastward is served through Madras and an idea of how the cables travel to Australia and the Far East may be interesting. From Madras two wires run to Penang where the service lines are doubled. Four wires leave Penang, one going to Sumatra and three to Singapore. At Singapore another division take place, the principal wires going to Saigon, Labuan, Borneo, Batavia, and Banjeowangi, Java. These wires are met at Java by three from Australia, two coming from Port Darwin and one from Broome. A cable meantime runs from Perth to Mauritius and South Africa *via* Cocos Island, but cables for India must either go *via* Broome or Port Darwin. The linking of Cocos with Batavia will give Perth an alternative route and possibly a quicker one to India. The joining of Cocos and Batavia is also beneficial to India and Ceylon as it provides an alternative route to South Africa. At present the only route to South Africa is from Bombay *via* Aden, but with a new cable messages could be despatched from Madras and travel by way of Penang, Singapore, Batavia, Cocos, and Mauritius. All the eastern submarine cables are owned by private companies so that the officials at the post office, Colombo, were not able to confirm or rebut the statement that such a scheme was under consideration, but Mr. Pagden, the Postmaster-General, was of opinion that there was a likelihood of its being true.—*Pinang Gazette*.

SILK FIBER MADE FROM PINEAPPLE LEAVES IN AUSTRALIA

Vice-Consul J. K. Foster writes from Newcastle that experiments made in Queensland with the leaves of the pineapple plant have shown that there is a fiber in them which may be used in the production of a useful kind of silky cloth. As to the particulars, he adds:

The fiber experimented upon has simply been obtained by the soaking of the leaves until the outer covering could be easily removed and the soft, jelly-like substances around the fiber pressed away. The fiber when dried has been found to be of fine texture and of good staple and strength. Some of it has been exhibited at Rockhampton and a sample has also been placed in the hands of a firm of ramie dealers and spinners to discover its market value. There is a great demand for all kinds of fibers, and this may be found to be a valuable one. Possibly there is here the utilization of a waste product. The leaves of this ground fruit have ever been destroyed as worthless, but if the fiber can be used it will be an additional source of profit to the pineapple growers. The process of extracting the fiber from the leaves need not be an expensive one, and if some new kind of silky material can be obtained it will produce no small amount of wealth. Pineapple silk may become the fashion. It will be worth while to make further experiments.

GOOD PROSPECTS IN SHANTUNG

Affairs at Ichowfu, a city of some 60,000 inhabitants in southern Shantung, are moving slowly, though there is evidently a steady growth in business. Although eight days from Shanghai by way of Tsing Tau and the Shantung railroad and ten to fifteen days by the Grand Canal, the influx of foreign goods is noticeable, and the town begins to take on an air of occidental sophistication. When the Tientsin-Chinkiang railroad makes its appearance—and the preliminary surveyors have been reported 100 miles south—the great Shantung wheat field will have been tapped, and mighty things will happen for the province and all North China. For one thing, much of the danger of famine will be removed.—Shanghai *Mercury*.

NORTH BORNEO RAILWAY

Supplemental to his previous report on the railroad to be constructed from Marudu Bay to Sandakan, British North Borneo, Consul Lester Maynard now writes:

The Marudu-Sandakan survey party arrived in Sandakan on April 1, 1907, after completing a flying survey between Tanjong Batu, on the Marudu Bay, and Sandakan, having covered a distance of 230 miles in seventy-five days. The surveyors report extremely difficult country for railroad construction, having encountered many swamps and rivers. At the lowest estimate 200 miles of rails will be necessary and over 2,500 feet of bridging. For this road 60-pound rails will be needed. In all probability Messrs. Paulding & Co., of London, will award the contracts for the permanent way, rolling stock, and iron superstructure. It will be necessary to have at least two more surveys before work on the road can be started.

Mines, Mining and Minerals in the Philippine Islands

(Edited by the Bureau of Science, Manila)

GOLD PLACERS OF NUEVA ECIJA

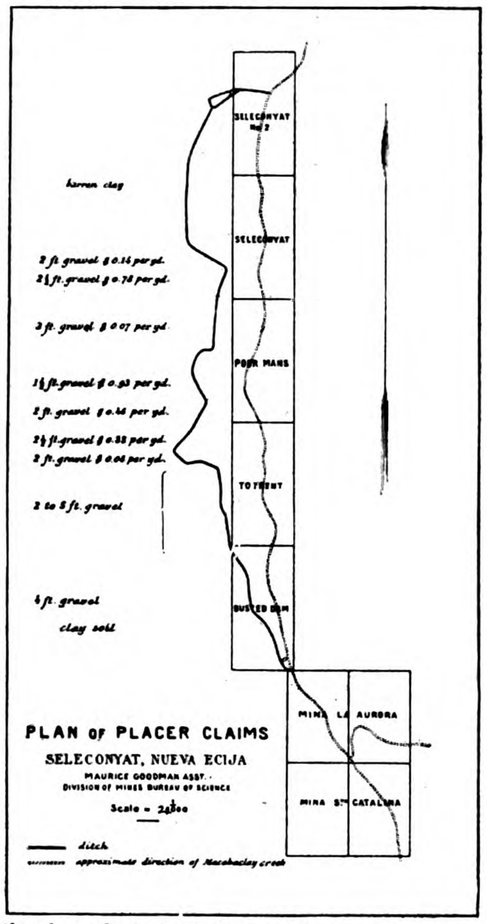
The placer fields of Nueva Ecija are situated in the valley of Central Luzon in the low and comparatively flat area east of the Rio Grande de Pampanga and about twelve miles east of its junction with the Rio Chico. The town of Peñaranda on the Cabanatuan extension of the M. & D. R. R. is about six miles distant from Seleconyat, the only place where mining operations are being carried on at present. These six miles are over a gently rolling grassy plain, uncultivated and uninhabited beyond the limits of the town and its barrios. While there are no wagon roads, there are several trails, and over these wagons can travel without much difficulty, during the dry season, at least.

The history of the district dates back twenty years and more. About 1890 a small company of foreign business men in Manila became interested in the reported occurrence of gold in the soil of this district, and learning that natives by crudest methods were each year extracting quite a respectable amount of the yellow metal, decided to investigate further and for this purpose sent an American miner to investigate and report to them. His report was probably encouraging, for we learn that within a year or two four claims were staked out, a small ditch was excavated, and a crude sluice built. The returns from these operations being promising, a European mining engineer was employed to visit and to report upon the value of the property and the advisability and best method of operating the mines. Unfortunately the insurrection of 1896 broke out at this time, and the engineer, who had already started on the way, turned back to Manila. Nothing further was done on the claims until about two years ago when, Mr. Fred Dorr, the American miner who originally staked and began operations on the claims of the company, returned to the scene of his early operations. Mr. Dorr has recently applied for a patent to five claims of eight hectares each, adjoining the four pertenencias of six hectares each, concessions for which were granted by the Spanish crown in 1895. During the last two years, Mr. Dorr has built a dam on the Macabaclay creek; a ditch about 8000 ft. long and four feet wide carries the water from the intake at the dam to the sluice gates. The surface of the ground is so uniform and level that but five flumes of a total length of 385 feet were necessary to carry the water across the larger depressions and gullies. As for the remainder, the ditch follows a general north and south direction and in no place was it necessary to cut more than six feet to preserve the uniformity of the grade, which is less than 1% over the greater part of its course. The intake is a box 2-½′ high ×4′ wide and 24′ long built into the earthen dam, the top of which is about 5 feet above the top of the box. An overflow at the level of the top of the box has been built to provide against an excess of water, It is twenty-four feet wide and is covered with inch planks, close jointed and firmly tied to posts driven into the ground, so as to prevent undermining of the earthworks. The take-off slopes at an angle of 12° and leads directly to Macabaclay creek.

The sluices consist of twenty five boxes ten inches high and eighteen inches wide, inside measurement. They have a slope of four inches in twelve feet and terminate in the Macabaclay. The floor of each box consists of a two inch plank of *apitong* wood, without cracks or knot holes, while the sides, braces, sills and other timbers are all of Oregon pine.

The riffles are triangular in cross section and are made by sawing diagonally across a 4″×4″ piece of Oregon pine. The long side of the triangle is turned up. Another unusual feature of the riffles is that cocoanut matting, instead of being placed below the riffles, is placed alternately above and below them. The operator claims that he finds this type and arrangement of riffles to work most satisfactorily.

Although gold has been taken out of these placer grounds for several decades at least,



PLAN OF PLACER CLAIMS
SELECONYAT, NUEVA ECIJA
MAURICE GOODMAN ASST.
DIVISION OF MINES BUREAU OF SCIENCE
Scale = 1/24800

the boundaries of the gold area are as little known today as they ever were. It is reported that gold has been discovered and washed in the banks of the headwaters of the Rio Grande about thirty miles north of Peñaranda and at other points intermediate. The same indefinite reports describe this gold as being in larger grains than that found at Peñaranda. While proof positive as to the origin of the gold is lacking, it is a fair surmise that it was derived from the older massives of the Caraballo Sur which enclose the valley on the north and west. The character of the gravel as well as the present drainage system, which in its general direction is probably the same today as it was past ages, substantiates this supposition.

From the topography of the country and the distribution of the gravels it would appear as if the deposit was first laid down either upon the shores of a shallow lake or upon the banks of a very wide stream. In some localities beds of calcareous clay, having the appearance of travertine, are to be found underlying the pay gravel: elsewhere the underlying beds consist of clay or sandstone loosely cemented and sometimes containing pieces of wood in incipient petrification. The bed rock is undoubtedly sedimentary and where it outcrops in the Macabaclay, it presents the much weathered and decomposed appearance of a coarse sandstone. A hornblende andesite and a dioritic gneiss outcrop in small creek beds approximately three and four miles respectively, southeast from Seleconyat, and these probably represent the underlying igneous. Beyond these, owing to the thick mantle of saprolite and the absence of deep drainage channels, very few outcrops are to be observed in the neighborhood.

The ditch affords a good longitudinal section of the ground, and the accompanying plan shows the approximate results of a number of pan assays obtained from the gravel therein, together with the thickness of the beds at these points. These results must be considered but coarsely approximate, being obtained by counting the number of colors per pan and classifying the colors according to size, the weights and values of each of which were later averaged. The pay gravel lies as a shallow surface deposit in which the gold is disseminated from the grass roots down to a depth of about four feet. The deposits of gravel appear to lie in patches, frequently on the tops of little knolls, presumably the uneroded portions of the former deposit. From this it may be inferred that the small gullies and creeks would develop richer and more concentrated gravel, but they have not been prospected and nothing positive can be vouchsafed on this point.

The pay gravel may ordinarily be recognized by its brownish color and by the presence of considerable quantities of quartz. The latter is in the form of sand, pebbles and larger masses of chalcedony and red jasper. Silicified wood is of common occurrence and a few specimens of chalcedony showing fragments of coralline structure were also picked up. The gold is remarkably pure but flaky and small, the largest of the scales being only about two centimeters in diameter. Apparently the quartz in the gravel is free from gold, the metallic particles appearing to be intimately mixed with the gravel, but clean and free except for a small amount of red clay which is frequently found adhering to the larger particles. The gold from this region is reported to be 958 fine according to an assay made during the Spanish regime.

One of the difficulties connected with sluicing in these gravels is the separation of the fine gold from the very sticky clays, some of which are quite rich. The contour of the country is such that the sluice cannot well be made longer nor steeper, and recourse must therefore be had in puddling. A wooden box 24′×24′ will be constructed for this purpose, and it will then be possible to save a large proportion of the fine gold, which has heretofore gone over the dump encased in lumps and balls of clay.

A more serious drawback to these placers, and the one which most seriously interferes with their economic operation, is the lack of a sufficient and continuous water supply. At present sluicing is carried on only during the rainy season, or from about the beginning of August through December. About two miles northwest of the workings flows the Rio Chico, a large stream running the year round, but at a level sixty to seventy feet below that of the placer ground. About seven and a half miles east of Seleconyat the Rio Sumagbao, which is the main branch of the Chico and also flows the entire year, breaks through a rocky gorge. This stream would afford more than an ample quantity of water if it could be conducted to the workings. Its elevation at the gap, however, is only ten to twenty feet above the workings, and from these it is separated by a broad ridge about one hundred feet high. This gap would afford an excellent dam site if the prospects warranted the construction

of such an expensive structure. It is only about seventy-five feet wide and its sides consist of nearly sheer walls two hundred feet high, of massive limestone.

An interesting feature connected with the Seleconyat placers is that platinum has been discovered in the concentrates, the ratio, according to one assay, being one third of one per cent of the metallic product. The white metallic concentrates showed the presence not only of platinum, but of some of the rare elements, probably iridium. The quantity available for experiment, however, was too small to make even a qualitative analysis possible. An effort will be made to obtain a sufficient quantity for this purpose and if successful the results of the analysis will be announced later.

MAURICE GOODMAN.

PERSONALS

George Icard, a well known prospector of the Mancayan-Suyoc mining region, has sold 800 pounds of telluride ore to Mr. H. P. Whitmarsh of Baguio. The price reported paid was one peso a pound.

Mr. J. Walter Gallagher has gone to Cebu to assist in the work on the Compostela Coal Mines.

Dan Curran, the well known mining man, is en route to the United States by way of the Trans-Siberian route. He expects to return to the islands in about six months.

Dr. R. H. McDill, who is interested in the Lepanto Mining Co., is expected to return from the United States the latter part of October.

Mr. Atkins of the Gold Bug Mining Co. of Masbate arrived in Manila recently with a gold brick weighing 60 ounces.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

		U. S. Currency.
ABRASIVES.—		
Bort good drill quality	carat	$ 85 00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2.00
ACIDS.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4 625
Sulphuric, 66° bulk	ton	18 00-20.00
Aluminum, 99%	lb	.36-.39
Antimony, needle	"	12½-.16
Arsenic, white	"	.07½- 07¾
ASBESTOS.—		
No. 1, crude	sh. ton	283.00
Fiber No. 2, paper stock	"	17.20
ASPHALTUM.—		
Trinidad	ton	30 00-40.00
California	"	20.00-35.00
Bleaching powder, 35%	100 lb	1.25-1.40
Blue Vitriol	"	7.50-7.75
Bone Ash	lb	.02¾-.04
Borax	"	.07½-.08
*Caps detonating	M	5.00
CEMENT.—		
Portland, American	500 lbs. bbl	1.55-1.60
Foreign	" "	2.25-2.90
Rosendale	300 " "	.85
*Green Islands	375 lb. bbl	2.50
*Alsen		2.90
CLAY, CHINA.—		
American common	lg. ton	9.00-12.00
Foreign	"	11.50-17.50
Copper	lb	.24-.25
*Dynamite 40%	"	.22½
Feldspar ground best	sh. ton	7.00-15 00
Fire brick American	M	30 00-40 00
Imported	"	26.00-45 00
Fire clay, St. Louis Mill	ton	2 50
*Fuse-Blasting	1,000 ft	5 00
Graphite-American ore, common	lb	.01-10
Artificial	lb	.05
Gypsum-Fertilizer	sh ton	7 00
Powdered	sh. ton	10.00
Lead	lb	.052⅜
Magnesite-Greece, crude, 95%	lg. ton	7.00-8.00
Bricks, domes	per M	160-200
Manganese, pure, 98-99%	lb	.75
Ore, 80-85%	sh. ton	35 00-45 00
Mercury, export flask	75 lbs	41 00 42.00
PAINTS AND COLORS.—		
Litharge American P'w'd	lb	.07½-.07¾
Ochre, Am. Com	sh. ton	8 50-9.00
Paris green, pure, bulk	lb	.26
Turpentine, spirits, bbl	gal	.64- 65
White lead, Am. dry	lb	.06¾- 07
Am. in Oil	"	.07¼-.07½
Zinc, white, Am. extra dry	"	.05⅞-.05½
Phosphates, Acid	per unit	.65-.67½
Florida hard rock	lg. ton	7.50
Land pebble 68%	"	4 50
Potassium Cyanide (98-99%	lb	18 -.19
Platinum	oz	26.00-28 50
*Powder, black blasting A	lb	.15
*Judson	"	.13½
Pyrite, Domestic Non-arsenical, lump	unit	.11- 11½
Imported non-arsenical lump	"	.13-.13½
Imported, arsenical	" "	.12- 12½
Saltpeter crude	100 lbs	3 75-4 00
Silica, Lump quartz	lg. ton	2 50-4 00
Ground quartz, ordinary	"	13 00-15.00
Glass sand, ordinary	"	2 75
Silver	oz	.66⅞
Sodium cyanide (100% KCN)	lb	.18-.19
*Steel, octagon drill	lb	.14
Sulphur, Louisiana prime	lg. ton	22.12½
Roll	100 lbs	1.85-2.15
Flowers sublimed	"	2.20-2.60
Talc—Domestic	sh. ton	15.00-25 00
Italian, best	"	35.00-40.00
Tin	lb	.40⅞
Zinc, metallic ch. pure	"	.15
Dust	"	05⅞-.06¼

*Manila quotation.

NEW PEIYANG LANCHOW COAL MINING CO.

The following are the rules and regulations in part submitted by the Tientsin Bank and approved by H. E. Viceroy Yuan, in connection with the Peiyang Lanchow Coal Mining Company, Limited.

This coal mine is situated in the District of Lanchow, and is to be worked under the title of the Peiyang Lanchow Coal Mining Company, Ltd. Plans and memoranda are to be submitted through the Viceroy to the Board of Agriculture, Industry and Commerce for record and in order to obtain the mining permit.

The boundaries of the mining area are from Fankochuang on the east, westward to Wushuichuang, Paitaotzu, Shihfoussu, Yangtzuling, Chenchiachuang, Machiakou, and Panpitien. To the north is the mountain range, while on the south are the Kaiping, Wali and Kuyeh Railway stations besides Palichuang, Yang Chiakao and Yuchiachuang, an area in all of forty li from east to west and eighteen li from north to south. It is proposed to begin working at Machiakou and with an extension in view later on. As this mine is for the convenience of coal supply to the Peiyang Government, it is entitled to a larger area than that of thirty li specified in the mining regulations of the Board, and this must not be claimed as precedent by any other mine. A proclamation will be issued by the local officials prohibiting other people from working mines in the area described.

The mine occupies a large area and is very rich in coal. A sum of two million taels will be raised in the form of twenty thousand shares at one hundred taels each to start the work, fifty taels being paid on registration, the balance to be paid after six months for the exchange of share scrip. Six per cent interest will be declared from the date of receipt of payment; and profit will be allotted when the output of coal permits.

The object of opening this mine is to develop Chinese trade and the supply of coal to the Peiyang Government. No shares will be sold to foreigners. The name, province and address of the shareholders must be given in detail, so that constant communication may be possible with the company. If foreigners take up shares secretly, through Chinese, their claims will not be recognised by the Company, and any transfer of shares to foreigners will be cancelled in order to avoid trouble.—*P. & T. Times.*

GOLD MINING IN NETHERLANDS-INDIA

Most of the gold mining companies in Netherlands India, says the *Straits Times*, just manage to exist; a few almost pay expenses. One of these—the Paleleh Company—which mines in Celebes, has just issued a report. It shows that while the output of gold has increased, it is not enough to pay a dividend. The gold won in 1906 is valued at 361,136 guilders, against 273,894 guilders in 1904.

MINING RIGHTS IN SUMATRA

The Netherlands India Government seem to be possessed with a fad for the nationalization of mines. The Redjang Lebong Company has proved that payable gold mines are to be found in the Bencoolen district (South Sumatra). Other companies are at work to prospect the land of promise. Upon this the Government took action and reserved large stretches of gold-bearing land. One venture, the Simau Company, remonstrated, on the ground that it had been prospecting this same land, and asked that the rights thus arising should be respected. The Government replied that it was against the public interest to grant the request.

LABOR IN BORNEO

The following is an excerpt from the Report on the Immigration and Protectorate Department of British North Borneo for 1906, just to hand:—

The year under review has been one of steady progress, the Tobacco Estate and Timber Export business, both large employers of indentured labor, have done well, and the Rubber estates are making very satisfactory progress.

On the East Coast the salt fish industry is increasing, and giving employment to a great deal of free labor.

In Marudu Bay new Cutch Works have been started; the Manganese Works continue to employ a large number of men; Langkon and Victoria Estates are both planting rubber, and timber is being worked on Banguey Island. The Resident reports that the free settlers in the vicinity of Kudat are increasing, and that they are making a good living, planting fruit and vegetables, and rearing pigs.

On the West Coast a steady influx of free immigrants is taking place, many coming to join relatives and friends; they quickly settle down, either up the line as monthly laborers on the Estates, or as gardeners and wood sawyers; the padi planting has been very successful this season, yielding well and being of good quality, and in many cases settlers will not find it necessary to buy any rice. The area of cultivation both in the vicinity of Jesselton and up country has been largely increased, and is still extending; both buyers and sellers seem to be well satisfied with the prices realized and I know of one trader who bought up a large quantity and shipped it off to the East Coast.

The question of Javanese labor is being taken in hand by the Straits Government, and I see by the Singapore papers that on the Selangor Rubber Estates they are being tried, and so far have worked well and proved very satisfactory, and that the Dutch Authorities are quite satisfied with the way they have been treated.

Although the Chinese are as a whole excellent workers and indispensable for Estate work, more particularly the heavier labor required for tobacco growing, I think that it will be a great advantage to this country if we can arrange for a permanent supply of Javanese coolies as well. I have it from more than one authority that they are quite as good as, if not better than, Chinese for rubber cultivation. And now that both the new Darvel Bay Tobacco Plantation Co., Ltd., and the New London Borneo Tobacco Co., have obtained permission from the Dutch Authorities to recruit coolies for work on their Estates, there is every reason to hope that we may soon see further batches arriving to work on the rubber plantations.

FORMOSA SUGAR CROP SHORT

The sugar season in Formosa is now almost over, says the *Asahi*, but the total output has not reached 100,000,000 kin, as estimated. The total was 92,667,500 kin, showing a decrease of about 18,000,000 on the figures for last year. This decrease is due to the failure of the cane-crop in consequence of a drought which prevailed during the planting season. Up to the end of last month, 90,563,802 kin of sugar had been sold.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

HANGKOW ELECTRIC LIGHT PLANT.—The Electric Light Works at Hankow have progressed so far that the concessions will be supplied with electricity, on and after Oct. 1st.

PEKING CITY RAILWAY.—Construction of the city railway in Peking has been postponed. An electric tramway will be constructed between Peking and Weihoyuan to begin with.

CHICHIBU ELECTRIC RAILWAY.—There is a scheme on foot to construct the Chichibu Electric Railway between Omiyamachi and Koishikawa (Tokyo), a distance of 51 miles, with 3,500,000 yen capital, of which certain foreign capitalists have already agreed to invest 2,000,000 yen.

WIRELESS TELEGRAPHY IN CHINA.—The wireless telegraphy apparatus, ordered by the manager of the Canton branch of the Chinese Imperial Telegraph, through Messrs. Carlowitz & Co. of Shameen, has arrived and it is proposed to install a station at Whampoa for trial in connection with the central office at Canton.

BHAMO-MOMEIN RAILWAY.—A railway connecting Burmah with Yunnan which follows the trade route from Tali-fu has been proposed. A reconnaissance survey for a 2 ft. 6 in. line has been made. This line will be worked by electricity as there is an abundance of water power along the route that may be utilized for the generating of electricity.

AKASHI-TOYAZAWAMURA ELECTRIC RAILWAY.—The Home Office has granted permission to the Harima Electric Railway Company, promoted by Mr. Kumejiro Taki, to construct an electric railway between Akashi and Toyazawamura in Harima. At the same time applications by Mr. Kanzo Matsuo, Mr. Eiji Suga and others for permission to construct electric railways, have been rejected because these railways traversed almost similar routes.

F. M. S. TELEGRAPHS AND TELEPHONES.—One thousand three hundred and eighty-one miles of telegraphs and telephones were in operation during the last fiscal year in the Federated Malay States. This represented 2,509 miles of wire, of which 1,063 miles were telephone wire, including 395 miles of wire kept up for the sole use of the Police. The cost of maintenance was $36,737; there was spent on construction $52,081; and the revenue derived from telegraphs was $52,858. New telegraph offices were established at Lenggong and Grit in Upper Perak.

The expenditure (included in the $52,081) on telephone construction was $40,439; and the subscriptions realized $12,449, an increase of $5,510.

RAILWAYS AND RAILWAY SUPPLIES

MUKDEN AND HSINMINGTUN RAILWAY.—The work of widening the gauge of the Mukden and Hsinmingtung Railway has been commenced.

AMUR RAILWAY SURVEY.—The land survey for the construction of the Amur Railway has been completed. Construction is expected to be finished in 1912.

KYUSHU RAILWAY.—The construction work of the Oita line of the Kyushu Railway has been suspended, the railway having been purchased by the Government. The work will probably be resumed in April next year.

INDIAN RAILWAYS.—In addition to the nine millions already appropriated for railway construction in India it is understood that another million will be made available for that purpose during the current year.

KURUN RAILWAY.—The Imperial Resident at Kurun has telegraphed to the Government urging it to immediately construct the Kurun-Kalgan Railway, and proposes to appropriate Tls. 300,000 from local funds to commence work.

BUKIT MERTAJAM-KEDAH RAILWAY.—The government of the F.M.S. is reported to have authorized the exploration of a proposed railway route from Bukit Mertajam in Wellesley province to a point in Kedah thus tapping a rich mineral belt.

SINGAPORE KRANJI RAILWAY.—The annual report on the working of the Singapore Kranji railway shows that during 1906 the receipts fell $7,502 below those of 1905. The decrease in passenger receipts is due "to fewer passengers going to gamble."

TRANS-SIBERIAN ROUTE.—Messrs. Shewan Tomes & Co. of Hongkong have secured the agency for the Trans-Siberian Route. It is now possible to reach London from Shanghai in 19 days and this will be reduced by two days when the Talien line is completed.

F. M. S. MOTOR CAR SERVICE.—The F. M. S. Railways Department has inaugurated a motor car service between Kuala Lumpur and Ampang, and two cars may now be seen running daily with passengers. The charge is five cents per mile, the minimum charge being fifteen cents.

MANILA RAILWAY COMPANY.—The traffic receipts of the Manila Railway for the week ending June 15 were $52,206 (including extensions, 207 miles open 1907) against $37,886 (main line only, 127 miles open, 1906) for the corresponding week of 1906, making an aggregate of $1,208,493, against $863,205 for last year.

MANILA RAILWAY.—The traffic receipts of the Manila Railway for the week ending June 22 were $42,641 (including extensions, 207 miles open 1907) against $34,343 (main line only, 127 miles open, 1906) for the corresponding week of 1906, making an aggregate of $1,251,314, against $897,548 for last year.

NEW BRANCH LINE IN INDIA.—The Railway Board have sanctioned a survey being made by the agency of the Burma Railways Company for a line of railway between a point on the Prome line in the neighborhood of Nattalin or Paungde and Kyangin on the west bank of the Irrawaddy, a distance of about 30 miles.

FORMOSAN RAILWAY.—The Government-General of Formosa intends to construct a light railway between Kagi and Fanshuliao, which is the centre of camphor manufacture in the island, for the transportation of camphor and other articles. The authorities lately purchased railway materials for 100 miles from the war office.

MANCHURIAN RAILWAY DEAL.—It is the subject of discussion in high diplomatic circles that France and England are desirous of taking over the South Manchurian railway; and, as the Japanese can not, at present, obtain the funds necessary, either in Japan or in Europe, it is not improbable that some such scheme will eventuate.

CHINA CUTS FREIGHT RATES.—China has reduced the goods tariff on the Hsinmintun-Mukden Railway by 30 per cent and proposes a further reduction as soon as the line has been completely reconstructed.

This action is considered to be intended as a heavy blow for the Japanese railway in respect of the trade of Newchwang.

CENTRAL BUSO RAILWAY.—The construction of the Central Buso Railway, a distance of about 48 miles from Sendagaya, Tokyo, to Odawara, Sagami province, via Atsugi and Hadano, will be proceeded with. At the instance of Messrs. K. Amenomiya, Z. Yasuda and eighty others the scheme has been formally sanctioned by the authorities.

FATSHAN-KONGMOON RAILWAY.—A third meeting was held recently at Fatshan for making arrangements for the floating of a company to build a railroad connecting that town with Kongmoon. There was a large attendance and the scheme was unanimously approved of by all those present and arrangements will soon be completed for the floating of the company.

NEW RAILWAY IN MANCHURIA.—Consul-General Ragsdale, of Tientsin, reports that the military governors of Kirin and Heilungkiang are consulting with a view to building a railway line between Peituanlintzu, a place situated to the north of Harbin, and Sanhsing, 500 li (about 520 miles) east of Sungari River, for which permission has been granted by the board of communication.

THE SHENSI RAILWAYS.—A proposition to the effect that the railways in Shensi Province should be constructed with capital raised in Shensi, Kansu and Honan, having been fully discussed by the Board of Posts and Communications, has been submitted to and approved of by Their Majesties. The provincial gentry and officials are accordingly instructed to proceed to give it effect.

KUANGTUNG-MACAO RAILWAY.—The viceroy of Kuang tung has informed the Waiwupu that Lin Pinghua has asked for the cancellation of the concession for laying a railway between Kuangtung and Macao. The Waiwupu has ordered Chang Chenghsun to send in all the papers in connection with the railway so as to enable the Waiwupu to open negotiatoins with the Portuguese minister to Peking.

BRITISH RAILWAY CONCESSION IN CHINA.—Mr. W. Runciman, parliamentary secretary to the treasury, has stated that the final contracts have been concluded for the Shanghai-Nanking and Canton-Hongkong railways. As regards the remaining British railway concessions, negotiations were proceeding, and though progress was slow the Government did not anticipate that China would fail in the end in regard to the obligations she has incurred.

MATERIAL FOR MANCHURIA RAILWAYS.—The greater part of the construction materials of the South Manchurian Railway is now in course of transportation from America. The price amounting to 20,000,000 *yen* is to be paid up by the end of the present year. In this connection the company has decided to issue the loans which were postponed at an early date. Negotiations are said to be going on this matter with the capitalists of England and France.

CHINESE MILITARY RAILWAY PROPOSED.—Owing to the difficulty of transporting modern drilled troops to Kiangpeh with the means which are now at the disposal of the authorities, H. E. Chang Chih-tung, Viceroy of the Liang Hu, has suggested to the Throne the expediency of laying a light military line of railroad from Hupeh into Kiangpeh. Pending the approval of Their Majesties H. E. has instructed his subordinates to purchase the necessary material.

KWANGSI RAILWAY CO.—Advices from Kwangsi state that the people of that province are contemplating the formation of a Kwangsi Railway Company by the floating of a company with a capital of $15,000,000. The capital is to be raised by subscription in shares at $5 each for the construction of the railroads in that province. A line will be constructed from Wuchow to Kwei Yuen district and thence to Nanning, etc. The telegram requested the Canton-Hankow Railway Company and the Nine Canton Charitable Institutions to assist the promoters in soliciting shares.

KUANCHENGTZU RAILWAY STATION.—A Russo-Japanese agreement relating to the Kuanchengtzu station was signed at St. Petersburg June 13th. According to the agreement, the present station is to be divided as a principle, into two equal parts between Russia and Japan. Japan cedes her share of the station to Russia at the price of about 600,000 *yen*. Japan will establish a station called Changchun at a place between the existing station and Changchun city. The division of the railway track between Japan and Russia will be performed by the South Manchurian Railway and Chinese Eastern Railway Companies, probably within this month.

RAILWAY SCHEMES FOR SHANTUNG.—A Chinanfu correspondent writing on June 22 to the "China Critic" says:—I am informed that the contract has been signed for immediate building of the road from the Yihsien coal mines to Taierhchwang on the canal, and that the line will be operated by steam, not by animal power as hitherto reported. This road should be of immeasurable benefit to southern Shantung. As for these coal fields, their productiveness is even now limited only by lack of transportation facilities. Two well-known German firms are joint contractors for the railroad but the capital is said to be all in Chinese hands. It is presumably to be a link in the Tientsin-Chinkiang line.

NEW KOREAN RAILWAY.—We learn from vernacular contemporaries that it is now decided to float a company to be named the Gen-nan Tetsudo Kaisha, which has been projected by Messrs. Okura, Asano and other financial magnates of Tokyo, to construct a railway between Gensan and Chinnampo, a distance of 190 miles. The capital of the company is fixed at Yen 20,000,000. An application has been received by the Nagoya Chamber of Commerce from Mr. Iwata, Chairman of the Gensan Chamber of Commerce, who is a member of the promoting committee of the new company, asking for support to the scheme, as it was beyond the power of the Japanese in Korea to accomplish the undertaking alone.

ROLLING STOCK FOR RUSSIA.—According to a Consular report noted in the Deutsche Submissionsanzeiger, the Russian Government has decided to order during the year 1907 the following rolling stock: 1,000 goods wagons, system Breidsprecher, to be used without reloading on foreign railways; 150 wagons for the transport of manganese ore on the Tschiatulsk branch of the trans-Caucasian Railway; 150 refrigerating cars for the transport of Siberian butter and 1,000 ordinary goods trucks and platforms of 900 pounds capacity; 20 mixed carriages, first and second class, on four axles; 10 passenger carriages, second class, on four axles; 60 third-class sleeping cars, system Guensburg, and 8 baggage vans on four axles.

F. M. S. RAILWAYS.—In his report for the year 1906 the general manager of the Federated Malay States Railways shows that the mileage open on the 31st December last was 428 miles 67 chains, an increase of 32 miles 35 chains, the length of the last section on the main line between Tampin and Kuala Gemas opened to traffic on the 1st October last. The length of the main line from Prai to Kuala Gemas is 351 miles 13 chains; and the branches Taiping to Port Weld, Tapah Road to Telok Anson, Batu Junction to Batu Caves, Kuala Lumpur to Port Swettenham, and Tampin to Malacca, aggregate 77 miles 54 chains.

In addition there were 60 miles 74 chains of siding, an increase during the year of 8 miles 46 chains, making a total of 489 miles 61 chains of railroad in operation.

CANTON-HANKOW RAILWAY.—The following resolutions were passed at the meeting of the Canton-Hankow Railway Company, which took place July 10 at the Company's office:—(1) That another section of the trunk line in the Kwangtung province, about 64 *li*, in addition to the other twenty sections and all other works be pushed on by engaging more engineers, and the completion of the whole trunk line should be completed with two years' time and then to commence the building of the branch sections. (2) That the iron and coal mines, the products from which are for the Company's use, be at once opened up as well as the timber felling from the vicinity of Kiungchow and Ngaichow to supply the Company with materials. (4) That an iron works be opened under the same regulations and in the same manner as the Hupeh Iron Works, for the purpose of repairing engines, machinery, rolling stocks, etc. of the company, and only Chinese engineers be employed in the proposed works.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

PIERS AT PORT DICKSON.—Messrs. Riley, Hargreaves & Co., Ltd., have secured the contract for a large new Pier at Pulo Sambee and also for extensive additions to the Railway Pier at Port Dickson.

KUANTAN HARBOR IMPROVEMENTS.—A big engineering scheme is now before the Pahang Government, and that is the improvement of the Kuantan harbor which will include extensive dredging operations which may probably run into millions.

HUANGPOO IMPROVEMENTS.—The Peking Government has authorized the Shanghai branch of the Imperial Government Bank (Hupu-bank) to pay to the Huangpu Conservancy Board an amount of several million Taels which is requested for the work on the river.

CONSERVANCY OF THE LIAO RIVER.—Viceroy Hsu Shih-chang has wired to the Yamen of the Comptrollers of Customs, asking it to request Sir Robert Hart to send engineers of the Harbor Department to survey the River Liao so as to effect conservancy works there.

FATSHAN WATERWORKS.—The leading merchants of Fatshan are proposing to float a water works company in that town by subscription under the same regulations as the Canton Waterworks. It is reported that surveying work has already commenced in the different streets for the purpose.

Singapore Contracts.—Tenders accepted by Government include that of Howarth Erskine's of $50,000 for erection of the main block and out offices of the new Maternity Hospital, and of Riley Hargreaves for the girders and expanded metal work in connection with the same building at $3,498.—*Press.*

Pasig Dredging.—The Pasig river from the town of Pasig to the mouth of the river, is to be dredged 150 feet in width and six feet in depth. The length of the bed to be dredged is six miles. The Bureau of Navigation is to do the work, employing about five dredges, with the necessary launches and other craft.

Dredge the Liaou River.—Owing to the shortness of funds, the Viceroy Hsu-Shih-chang, of Manchuria, proposes to dredge the Liao Ho in Fengtien Province, with mercantile money, to be subscribed among the Chinese merchants at Yingkow and in the Three Eastern Provinces generally. It is said that about Tls. 4,000,000 are required for this purpose.—*P. & T. Times.*

Waterway Conservancy Board.—At the instance of the Chinese gentry in Tientsin, H.E. Viceroy Yuan Shih-kai has established a Bureau of Inland Waterways Conservancy to undertake the conservancy of all creeks and waterways in the province of Chihli.

It is believed that with proper regulation of the waterways, an immense area of corn fields will be improved in irrigation.

U. S. Cement Contract.—Wm. H. Anderson & Co., Manila, have been granted the contract for supplying 1,000 barrels of Green Island cement to the Depot quartermaster. The bidders on this lot were as follows: Findlay & Co., "Alsen" free entry, ₱5.48; Castle Brothers-Wolf & Sons, "Colonial ₱5.39, "Eagle" ₱4.46, "Scale" ₱5.39, duty paid; Wm. H. Anderson & Co. "Green Island" ₱5.10 per barrel, free entry.

F. M. S. Public Works.—Under Public Works the Federated Malay States expended the sum of $2,042,657 on works and buildings, $3,805,199 on the construction and upkeep of roads, streets, and bridges, and $149,768 on irrigation works during the fiscal year 1906. The total expenditure on Public Works and Railways of the Federated Malay States was $11,296,394, or, if the expenditure on construction through Johore be added, $14,518,155.

The New Yalu River Bridge.—The proposed bridge over the Yalu is to be between New Wiju and Antung. The bridge will be 3,300 feet long and will have two side-walks eight feet wide. It will be thirty-six feet high at ebb tide and twenty-four feet at flood-tide. The estimated cost is -Y-2,000,000. It is said that from various causes it will be impossible to start the work within the next fiscal year. The bridge is expected to be between four and five years in building

Foochow Dock.—Tartar General Chung Shan has informed the French engineers in the Foochow Dock that the contract with all foreigners in the Dock will not be renewed when the terms of the contracts have expired.

The Waiwupu has also wired to the authorities at Foochow that the Board of War has decided to stop the working of the Arsenal and all the foreigners there will be disengaged.—*Shanghai Mercury.*

U. S. Quartermaster's Manila Warehouses to Cost Million.—General Wood, commanding the Division of the Philippines, is preparing an estimate for the construction of warehouses on the reclaimed area in the new port set aside for the use of the U. S. Army. These buildings will be constructed of reinforced concrete and will be made cyclone proof, insect proof, burglar proof and earthquake proof. The estimates will include the equipment of the buildings with electric elevators, lighting, parking, building of the necessary roads with connections for utilizing the electric road for the transportation of supplies to Fort McKinley. The cost will reach the vicinity of one million.

Australian Irrigation Works.—According to the Sydney Mail special attention is being given by the Department of Works of New South Wales, Australia, to expediting the Barren Jack scheme of damming the waters of the Murrumbidgee, so as to render practicable the irrigation of a vast tract of western country. A dam is to be built to a height of 200 feet, at a cost of $3,942,000; a main canal 152 miles in length will cos $1,655,000; and main distributory and lateral channeling will bring up the cost to about $7,300,000. The total area of land which can be irrigated by the water to be impounded is calculated at 1,350,000 acres. The area of the water to be impounded is 1,000 square miles, the dam having nearly the capacity of the Assouan dam.

SHIPBUILDING, GENERAL MARINE, FISHERIES, ETC.

P. and O. Fleet.—The fleet of the Peninsular and Oriental Steam Navigation Company now numbers fifty-eight steamers and twenty-nine steam tenders and tugs, with a total tonnage of 382,888 tons.

Steamers and Light Railway.—The provincial Government of Hehlungkiang has bought three steamers to ply on the river Amur and also materials for a light railway for that province. The matter has already been reported to the Board of Communications.

New Japanese Steamers.—The Osaka Shosen Kaisha's steamer Hozan Maru, of 2,500 gross tonnage, which was under construction at the Kawasaki Yard, Kobe, has been completed. She will be placed on the service between Vladivostok and Tsuruga from July 8.

There was an interesting ceremony at the Kawasaki Dockyard on Saturday afternoon, June 8th, the "Siang-Yang-maru," which has been built at the Kawasaki Yard to the order of the Nippon Yusen Kaisha, having been then successfully launched. The "Siang-Yang-maru" is a vessel of 3,500 tons, and is to steam 15 knots and is for the Yangtsze trade.

Launches for U. S. Army.—The Chief Quartermaster of the Philippines Division has awarded contracts to the Hongkong and Whampoa Dock Company for the construction of two steam launches, one to cost $17,800 and the other $18,100 gold. Other bids under specifications of May 8, for three more steel steam launches, eight steel lorchas, one steel hull and eight boilers, were rejected because of lack of available funds.

Kawasaki Dockyard Busy.—The activity of the Kawasaki Dockyard during recent months has been quite marked. Scarcely a month passes but some leviathan is launched from this famous yard. On the 11th inst. was to have been launched the Kagi Maru, a steel spardeck steamer built to order of the Osaka Shosen Kaisha. From the photograph of the steamer which accompanies the very real invitation sent out for the occasion she appears to be a beautiful vessel, and the dockyard is to be congratulated on her completion.

Shire Steamship Co.—It is stated that an important development is about to take place in the Shire Line of steamers, running between Middlesbrough, London, Antwerp, the Straits, Japan, and China. The Shire Line consists of a dozen well-equipped steamers organized to meet the growing trade between Europe and the East. The possibilities of development have been evident for some time. The Royal Mail Steam Packet Company has acquired considerable interest in the Shire Line, and the result will be that in future British shipping interests, as represented by the two companies mentioned, will take a still more prominent part in the trade of the Straits, Japan and China.

Chinese Naval Stations.—The Chinese Government selected last year Yingchengwan in Shantung, Hsiangshangpu and Choushantao in Chekiang and Peihaiwan in Kwangtung as sites of new naval stations. In this connection Admiral Sa Chenping, commander-in-chief of the Southern and Northern Fleets, was ordered to engage in the investigation and surveying of these places. Recently as the result of the investigation Choushantao has been decided as the best, this port being surrounded on all sides by projecting hills, and every requirement needed for a good anchorage. The harbor is wide and water deep enough to accommodate men-of-war of over 20,000 tons displacement.

MINES, MINERALS, AND THE METAL TRADE

Dutch Mining Syndicate.—A Dutch syndicate is said to have acquired a first-class tin mine in Kinta District, and may be expected to commence operations at a comparatively early date.

Copper Mines in Anhwei.—The Board of Agriculture, Works and Commerce, has wired to the Governor of Anhwei to postpone the negotiations regarding the Tungkwan Copper Mines so as to avoid any troubles.

Kan Hsien Copper Mine.—Viceroy Tuan Fang, of the Liang-kiang provinces, reports the putting aside of Tls. 400,000, half from Kiang-su and half from Kiang-hsi, for working a good copper mine at Kan Hsien in the latter province.

Yunnan Copper Mines.—The Viceroy, Hsi Liang, at Yun-nan Fu, requests the Throne to allow him to spend Tls. 1,000,000 for the improvement of the copper mines in Yun-nan province, in view of the great demand for this metal for coining purposes in the various mints of China; and also to check the large influx of foreign copper every year.

Manchurian Mining Co.—Messrs. Shiung Chih-shih and Li Chingchi, two Chinese mining men who have been invited over from the Straits Settlements by Taotai Shen Shao-lien, deputed by the former Military Governor, H. E. Chao Erh-sen, have arrived at Mukden, and have proposed establishing a Mining Exploitation Company in that city.

Japanese Coal Deposits.—The Mitsubishi Company, which has been making a survey of the coal deposits at Iojima and Okinoshima, islets lying at the entrance of Nagasaki harbor, recently applied to the Fukuoka Mine Office for sanction to work these collieries. They were once worked by Messrs. Holme, Ringer & Co. who, however, gave up their right on account of the depth of the seams.

Perak Tin.—The output of tin for June was 35,220.09 pikuls against 38,762.05 pikuls in the month before.

The approximate value of the metal is returned at $3,166,006.43 on which duty amounting to $445,335.29 was collected.

The average price of tin was $91.26 per pikul with duty at $37.93 per bhara. The figures for May were $93.79 and $30.18 respectively.

A Chino-Japanese Coal Company.—An agreement has just been signed between certain Japanese Chinese gentry for the flotation of a coal mine at Hsingching in Manchuria.

The working capital is to be two millions, six-tenths of which are to be raised by the Chinese, and four-tenths by the Japanese, in fifty dollar shares.

The company has been registered at the Board of Agriculture, Industry and Commerce in Peking, and at the Commercial Department in Tokyo.

Gold Deposits of Jeho.—It is reported in mandarin circles that Sir John Jordan, on behalf of a syndicate of British capitalists, has requested from the Waiwupu permission to develop certain gold deposits that have been discovered in the district of Chihfêng (Chihfèng means Red Pinnacled Cliff) in Jeho territory, and also to be allowed to lay a branch railway to connect the mine with the Tientsin-Shanhaikuan Railway. It is stated that the Waiwupu has refused to consider the matter, on the ground that a syndicate of Chinese capitalists has already been granted the necessary permit to develop the mine.

Singapore Smelters.—The Power-Gas Corporation (Limited), of Stockton-on-Tees, have in hand plant intended for the Pulau Brani Smelting Works, Singapore. The plant consists of two "Mond" type patent producers, each capable of gasifying about 16 tons of fuel per day of 24 hours. There is no washing and cleaning plant in connection with the gas-producing apparatus, as the gas is to be used for heating purposes. There will be two electrically-driven blowers of the "Root" type, and the coal handling plant will also be electrically driven. In this installation the Power-Gas Corporation's standard plant will be adapted to treat the gases from tin-smelting furnaces.

Japanese Oil Refinery.—The Toyo Kisen Kaisha is about to engage in the transport of crude kerosene oil supplied by the California Petroleum Company. An oil tank steamer for this trade is now being constructed at the Mitsu Bishi Yard at Nagasaki. The factory of the Namboku Petroleum Company, which is now being built at Hiranuma, near Yokohama, where the Californian oil is to be refined, is nearing completion. The petroleum company has also decided to construct an oil-tank at Noda, near Suma, and the land for the site has already been purchased. The Toyo Kisen Kaisha, we learn, has also purchased an oil-tank steamer of 6,000 tons in England.

Pekin Syndicate Mines.—The secretary states that a telegram has been received from the chief mining engineer at the Ja-Mei-Sen Colliery, Honan, to the effect that "the drift at 656 ft. level from No. 1 shaft (referred to in the circular-letter to the shareholders of May 7) has struck the coal seam at a distance of 97 ft. The seam is here 7 ft. thick. Further prospecting is proceeding; meantime a small quantity of coal is being obtained from this point, 20 per cent of which is good clean lump. The supply will be limited until development has been carried to a further extent and the shafts have been cleared of sinking pumps. The strata still show signs of disturbance, though not so marked as in the immediate proximity of the shafts, and the lie of the seam to the north-west is still undetermined. Boring is also proceeding.—*London and China Express.*

FINANCIAL AND MISCELLANEOUS

Chemulpo Brewing Co.—A big beer company has been formed at Chemulpo, Korea. It is to have a capital of $1,000,000.

Hongkong Bank's New Home.—The Hongkong and Shanghai Bank is building premises of its own at Sourabaya at a cost of about 76,000 guilders.

Cotton Mill at Tientsin.—Owing to the scarcity of cotton in Chinese Turkestan, the Military Governor of Ili proposes to establish a cotton spinning and weaving factory in Tientsin with new machinery bought from Germany for Tls. 160,000.

Japanese Spinning Companies Combine.—The Nippon Silk and Cotton Spinning Company will be absorbed by the Kanegafuchi Spinning Company shortly. A provisional contract of amalgamation was signed between the Directors of the two Companies on June 28.

Yokohama Gas Works.—Yokoahma city intends to greatly extend its gas works, and to acquire 10,000 *tsubo* of land for the purpose. A committee in the Yokohama city office has approved of the municipal proposal to issue debentures to the extent of 600,000 *yen* in connection therewith.

Shanghai Flour Mills.—There are now six roller flour mills in Shanghai with a combined daily output of about 110,000 sacks of 50 lbs. each per day. Half of the wheat used in the Lee Dah mill is imported from America, the other half coming from Shangtung.

Manila Gets Manchurian Trade.—Two prominent Chinese from Shanghai have paid a visit to Manila and placed large orders with American firms for farm machinery to be used in Manchuria, states the China Telegraph. One firm received an order amounting to ₱60,000 ($30,000 gold).

Entire Wheel of Rubber.—Mr. L. A. Van Rijn, Manager of the Netherlands Gutta Percha Company, Ltd., Singapore, has been authorized to file a specification of a certain invention for a wheel for motor cars or other vehicles, manufactured in one entire piece and wholly from rubber, gutta percha, or other elastic materials.

Cassia Market.—Reports from Loting announce that the exports of Cassia bark from Sz Lun, Sai-ning and Sin Hoi amount annually to about 4,000,000 catties and the price ranges from $9 to $12 per picul according to quality. There is also exported from these districts about a million catties of cassia twigs.

Indian Cigars for the Straits.—The Straits Settlements are importing large quantities of cheap cigars from Madras, the imports during 1906-7 having amounted to some 284,000 lbs. In addition the settlements secured 1,185,000 lbs. of tobacco leaf from Madras, the leaf being largely of a common quality usually sold for chewing and for use in hookahs.

Japan Buys Immense Corn Supplies.—A telegram received from Harbin, Manchuria, says that a Japanese bank has been opened at Kuat-shent-si, and that an enormous quantity of freight is being conveyed in wagons from Tsitsihar to Kuat-shent-si, and also that the Japanese are buying immense supplies of corn for shipment to Japan.

Philippine Wood for Lead Pencils.—The Bureau of Forestry has forwarded samples of Red Lauan and Balabacan worth about $40 a thousand feet and Catalas worth $90 a thousand to Messrs. Lehman & Co. of New York in answer to an enquiry as to the adaptability of Philippine woods to supply the shortage in the supply of material suitable for the purpose.

German Colonizing Co.—A Company to encourage colonization in German New Guinea has been started in London. The would-be colonists must each pay the Company £300 down. In return, they get a free passage and free support for 18 months. A share in the profits of the Company is also promised them. The Company intends to build up an export trade in timber,

Sugar Cane Cutter.—An invention which promises great things to sugar growers is reported from East Java. An engineer on one of the sugar estates has invented an implement which, so says expert opinion, will shortly be used wherever time and money are of value to planters. It is a machine which simplifies the cutting of sugar cane in the fields. By it two men can cut 272 piculs (18 tons) of cane a day.

Cotton Mills Combine.—A report from Nagoya states that amalgamation is again on the tapis between the Japan Cotton Mill and Ichinomiya Cotton Mill Companies. On Tuesday the president, manager and others of the former company inspected the factory and other buildings of the latter. Negotiations will open between the two on the close of the present business term and amalgamation will be probably carried out on the 1st October.

Japanese Ice Plants.—There are three ice factories in Kyushu, at Nagasaki, Moji, and Kumamoto, the total annual production being about 8,000 tons. Natural ice has also been imported from Hakodate and is also obtainable at Unzen. Additional factories are being established at Kokura and Saga. The Nagasaki factory, which is situated at Inasa, manufactures about fifteen tons of ice daily. The proprietors propose to increase the output to fifty tons daily.

Manchurian Flour Manufacturing Co.—Mr. Nakano, director of the Manchurian Flour Manufacturing Co., has arrived at Tairen. The company intends to build a flour mill of 500 horse power, capable of producing 1,700 bags of flour a day, at Tiehling. It has already obtained a lease of land covering 5,000 *tsubo* in the vicinity of the Tiehling station from the South Manchurian Co. The construction work is expected to be finished by the end of the present year.

Tapioca Industry in Java.—The Handelsvereeniging Amsterdam has started an extensive tapioca plantation at Bondorejo in East Java, on an abandoned coffee estate, situated on the slopes of a volcano. The works turn out about 3,000 piculs of tapioca flour a day, which is shipped mostly to America. The installation cost about two millions of guilders. One troublesome feature of the work arises from the need of giving to the flour the milk-white color so much prized by Americans.

Formosan Camphor Monopoly.—It is reported that the Japanese will shortly advertise for tenders for the exclusive right of handling the camphor production of Formosa, as the contract with the present firm expires next March. Last year the yield amounted to 3,083,000 kin in addition to 3,166,000 kin of camphor oil. Hitherto the Japanese government has granted the monopoly to the bidder offering to quote the lowest sale price. The object was to keep the market normal and keep out the artificial product.

Batavia Labor Bureau.—An Anglo-Dutch Labor Bureau, Limited, has just been established at Batavia with a capital of 50,000 guilders, with the object of recruiting labor for planters, miners, and business men in Netherlands India and elsewhere. The firm of Campbell, McColl and Co., at Batavia, undertake the management of the Bureau. This will facilitate the recruitment of Javanese for the F. M. S. and will probably have the result of making the calls by planters in Malaya for labor from South India less frequent and less urgent.

Seoul Gas Company.—News comes from Seoul that Baron Shibusawa and Mr. Ichihara on the Japanese side have combined with several Koreans to form a gas company in the Korean capital and that a charter has been obtained. According to this document the enterprise of the company is to be limited to Seoul; it is to have a monopoly of gas supply for a period of 25 years; it is to be purchasable by the Korean Government at a proper price after the conclusion of 50 years, and it is to enjoy freedom from customs duties during a space of 15 years on all machines and essentials imported for its use.

No Alien Coin in the Straits.—An order in Council appears in the *Government Gazette* prohibiting the circulation within the Colony of the British Trade dollar, the Mexican, the Japanese yen, and the Philippine Peso; all silver coins issued by any mint in China; all silver subsidiary coins issued by the Government of Hongkong or by any other Government than the Straits Settlements, and all other bronze or copper coins not issued by the Government of the Straits Settlements. This order supersedes that of Aug. 30th, 1906, where the circulation of Sarawak bronze or copper coins was prohibited.

Japan Steel Works.—Of the sum of 10 million *yen* to constitute the initial capital of the Japan Steel Works to be established at Muroran, half will be produced by the English companies, Armstrong and Vickers-Maxim, and the other half by the Hokkaido Colliery and Steamship Company. The latter lately issued debentures amounting to 10 million *yen*, of which 4 millions are to be handed over to the government. Thus the company has decided to furnish 5 millions *yen*. But as 10 million *yen* is not sufficient as the capital of the foundry, the Japanese company intends to issue 4% debentures at par in London.

PHILIPPINE RAILROAD CONSTRUCTION

Notwithstanding the heavy rainfall in Cebu and Panay the Philippine Railway Co. continues pushing the work of construction on its different lines. The second section of 20 miles in Panay between Pototan and Dumarao was recently approved by the commission and grading, has been started. In Cebu the third section, covering a distance of 25 miles, has also been approved, making in all 100 miles under way. The terminus of the third section in Cebu is Argao, a pueblo south of Carcar.

In September the company expects to start at the track laying in earnest. It is anticipated that it will take 90 working days to complete the tracklaying on one section of 20 miles in Panay, owing to the lack of transportation facilities. The line in Panay runs through the interior of the island and the steel and other material must be carried from the Iloilo terminal on construction cars as the track is slowly put in place. This means that track may be laid at only one point at a time In Cebu. the track laying will take the minimum amount of time in comparison owing to the fact that material may be delivered at different points along the line by means of water transportation and thus make it possible to lay the steel at different points simultaneously.

Preparations are being made to carry out the plans for building construction and by December this work will be well on the way.

The Manila Railway Co.'s construction, while somewhat affected by the rains, is still progressing most satisfactorily.

Little additional work has been accomplished on the Dagupan-San Fernando line. On the Camp One branch there are now ten kilometers graded. On the San Pedro Magalang line five kilometers have been laid with steel and steel has been laid on the Florida Blanca branch for eight kilometers. On the Batangas branch 38 kilometers have been graded. The Manila belt line from Santa Mesa to Paco, a distance of about six kilometers in all, has been graded and the Cavite short line for a distance of 15 kilometers connecting Paco with Cavite, has been graded.

The Suburban Electric will begin active operations on its Pasig line in September, when it is expected that the materials for the big bridge over the river at Pasig will have arrived. Once the bridge is completed the work on the balance of the line will not suffer from delay in pushing the construction.

There is a small bridge to be built in the city of Pasig and about one and one half miles to be graded and the track laid on the Pasig side of the river. This line, which is an extension of the Fort William McKinley line, will tap a very fertile and thickly populated section of the country. The line to McKinley, which has been in operation for some time, has a most satisfactory patronage.

SHIMONOSEKI STRAITS IMPROVEMENTS.

The improvement of the passage of the Shimonoseki Straits has long been a subject of study on the part of the Government authorities, says the Japan *Daily Herald*. The necessity has become more keenly felt, with the rapid growth of the ports of Shimonoseki and Moji, in connection with the transit trade and coaling depots. Collisions and wrecks have been of frequent occurrence in the Straits during the past few years. Even the vesels sunk in the Straits since the late Russo-Japanese war, and which are now actually impeding traffic, number seven, the vessels being the Katsuno Maru (2,259 tons), No. 3 Ikuta Maru (2,043 tons), Ryoyo Maru (2,808 tons), Ryusei Maru (1,230 tons), Chinkai Maru (2,160 tons), Naka Maru (980 tons), and another. In view of the existence of sunken rocks and shoals, and of the strong current, all of which are sources of danger to navigation, the Government contemplates formulating in the Budget for the next fiscal year an appropriation of a large sum for the prosecution of work for the removal of rocks facing the Sea of Japan at the mouth of the Straits, the dredging of shoals, and other improvements.

HEMP STATISTICS, 1st AUGUST, 1907

(Courtesy of C. S. Nicholson, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up to 31st July		431,646 *Bales.*
Arrivals of hemp at Cebu up to 31st July		118,832 *Bales.*
Arrivals of hemp at all Ports up to 31st July		550,478 *Bales.*
Stocks on hand in Manila and Cebu on 1st January 1907		63,432 *Bales.*
Total		613,910 *Bales.*
Export to all parts to date 31-7-07	507,632 *Bales.*	
Local consumption estimated at	5,679 "	513,311 *Bales.*
Total stocks at Manila and Cebu on 1st August, 1907		100,599 *Bales.*

EXPORT OF HEMP, JULY, 1907.

Date	*Vessel*	*London*	*L'pool*	*Atlantic U. S.*	*Pacific East & California*	*Australia*	*Other pts.*	*Total Bales*
	F'wd:—	137,354	47,110	190,304	17,700	4,965	33,899	431,332
July 1	Achilles	10,231	5,353				2,125	17,709
" 2	Tean	161	70					231
" "	Christiana						2,215	2,215
" 3	Chingtu						50	50
" 5	Yuensang						25	25
" 6	Rubi						625	625
" 8	Isla de Panay	2,068					67	2,135
" 9	Taming	270	875				100	1,245
" 11	Taiyuan						600	600
" 12	Loongsang						200	200
" "	Colombo Maru	7,171					275	7,446
" "	Zafiro						1,379	1,379
" "	Peshawur ....Cebu	4,250	1,945				225	6,420
" 15	Yawata Maru					400		400
" "	Changsha					720		720
" 16	Tean						100	100
" 19	Rubi						350	350
" 23	Taming	650	300					950
" 24	Peshawur	4,346	3,054				650	8,050
" 25	Seneca			8,528				8,528
" "	Loongsang	250						250
" 26	Zafiro						100	100
" "	St. Patrick			6,271				6,271
" "	Ceylon Maru	7,552					862	8,414
" "	Prinz Waldemar						313	313
" 31	Eastern						374	374
" "	Kumano Maru					1,200		1,200
	Total	174,303	58,707	205,103	17,700	7,285	44,534	507,632

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for August.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation do do (new)	1865 1907	$15,000,000	80,000 40,000	$125 $125	$125 $62½	g £1,000,000 s $11,000,000 i $250,000	$1,721,558	31-12-07	£1.15/- and bonus of £1 @ ex. 2/3½ $24.33 making $40.80 for 1906	4½	$685 ex new issue $522½ n. issue £80-10/ ex n. i. £60 new issue (first call)
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £12,735 $300,000	$71,293	31-12-06	$2 (London 3/6) for 1903	....	$51
Russo Chinese Bank		Rbs. 15,000,000 Tls. 2,000,000	80,000 16,000	Rbs. 187½ Tls. 125	Rbs. 187½ Tls. 125	g Rbs7,130,500 s Rbs2,000,000 s Tls 800,000			9 per cent		Tls. 175 buyers
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,675,000 j $200,000	$233,638	31-12-05	$20 for 1905	7½	$270 buyers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £110,000 s Tls. 100,000 f Tls. 50,000	Tls. 185,529	30-6-06	Interim of 7s. 6d. for account 1906 at ex. 2-10-11-16 per tael	6	Tls. 75 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £70,000 f $456,407 j £125,137.15 u $817,628	$1,460,490	31-12-06	Final of $12 making $42 for 1905, and interim of $30 for account 1906	5½	$775 sales
Yangtsze Ins. Association, Ld.	1862	$800,000	8,000	$100	$60	$850,000 j $136,287 f $ 15,527	$461,476	31-12-06	$12 for year ending 31. 12. 05	6⅔	$180
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $320,449 f $7,616	$362,980	31-12-06	$6 and bonus $2 for 1905	9½	$88
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,256,483	$435,236	31-12-06	$40 for 1905	12½	$320 sellers
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$365	31-12-06	$1 for 1906	6⅔	$15
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $93,562	Nil.	30-6-06	$2½ for year ended 30-6-06	6	$41
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $600,000 f $144,386	$20,170	31-12-06	$1 for 2nd ½-year making $2.00 for 1906	6⅔	$29⅔ sellers
Indo-China Steam Navigation Co., Ld.	1882	m £600,000	2) 60,000	£10	£10	£120,000 i £280,958 h £3,999	£2,452	31-12-05	10/- @ ex. 2-1-9-16 = $4.69 for 05	....	$70
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 54,372	Tls. 13,327	31-12-06	Final of Tls. 3 making Tls. 5½ 1906 Final of Tls. 3½ making Tls. 5½ 1906	11½ 10½	Tls. 47 Tls. 50 buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£400,000 i £5,167.14-1	£85,355-6-10	31-12-05	1/-(Coupon No. 8) for 1907	4½	47/-buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $32,957	$137	30-4-07	$1.00 50 cts. for year ended 30-4-07	4 3½	$25 $14
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 419,479 e Tls. 62,000 i Tls. 81,200 q Tls. 30,000	Tls. 18,730	31-12-06	Final of Tls. 2 making Tls. 6 for 1906	12½	Tls. 48
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o $345,741 e $450,000 r $ 56,848	$9,218	31-12-06	$8 for year ending 31-12-06	8	$100 buyers
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $138,523	31-12-06	$3 for 1897	....	$21
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 8,935	31-8-06	Tls. 4. (8%) for year ending 31-8-06	4½	Tls. 89 sellers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £110,000 h £12,289	£12,546	28-2-06	Interim of 1/6 for account year ending 28-2-07	4	Tls. 15.70 sellers
Oriental Consolidated Mining Co., Ld.	1901	G. $5,000,000	y 500,000	G. $10	G. $10	none	G $909,050	30-6-06	Interim of 50 cts. for % 1906	....	G. $5
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £15,481	31-3-06	No. 12 of 1/- = 48 cents	....	$6
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	z 18,000	$25	$25	$64,124	$10,335	31-12-06	$1¾ for year ending 31-12-06	10	$17½ sellers
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$2,000,000	40,000	$50	$50	$550,000 t $23,152 i $30,000	$3,047	31-12-06	Final of $2½ making $5 for 1906	6½	$77
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	v $50,000 $56,299	$400,933	31-12-06	$6 for 2nd ½-year making $12 for 1906	11½	$102 sellers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 3,997	30-4-06	Final of Tls. 4 making Tls. 8 for 05-'6	10½	Tls. 76½
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	14) 36,000	Tls. 100	Tls .100	b Tls. 487,210 r Tls. 100,000 p Tls. 190,100 e Tls. 75,000	Tls. 23,117	31-12-06	Final of Tls. 10 making Tls 18 for year ending 31-12-06 (on old capital)	7¾	Tls. 229 sellers
Vulcan Ironworks, Ld.	1905	Tls. 500,000	1,000	Tls. 500	Tls. 500	....	Tls. 12,187	31-8-06	Tls. 50 for year ended 31-8-06	10	Tls. 500 sellers
Yangtsze Wharf & Godown Co., Ld.	1902	Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 12,936	31-12-05	Tls. 18 for 1905	8½	Tls. 212½
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 15,000	Tls. 3,388	28-2-07	Tls. 6 for 14½ months ending 28-2-07	6	Tls. 103
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	$8,418	30-6-06	$3 for year ending 30-6-06	10½	$28
Astor House Hotel, Ld. (Tientsin)	....	Tls. 100,000	2,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-06	Final of Tls. 6½ making Tls. 11½ for year ending 28-2-06.	8½	Tls. 140 buyers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$9,178	31-12-06	$1.80 for 1906	12	$15
China Land and Finance Co.	1903	Tls. 321,250	6,425	Tls. 50	Tls. 50	Tls. 10,000	Tls. 4,393	1-3-07	Tls. 5 for year ending 28-2-07	10	Tls. 50
Hongkong Hotel Co., Ld.	1866	$600,000	12 000	$50	$50	$648,975 r $26,075	$371	31-12-06	$5 for 2nd half-year making $10 for 1906	8½	$118
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$56,218	31-12-06	Final div. of $3½ making $7 for 1906	7	$107 ex. slv.
Hotel des Colonies Co., Ld.	1902	Tls. 225,000	9,000	Tls. 25	Tls. 25	h Tls. 29,783	Tls. 1,935	31-3-06	Final of 6% = making 10% for 1905	....	Tls. 13
Hotel Metropole Co., Ld.	1904	$200,000	2,000	$100	$100	none	$4,699	30-6-05	Final of $6 making $10 for the year	12½	$80
Humphrey's Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $208,386 e $50,000	$11,567	31-12-06	80 cents for 1906	7½	$10¾

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCKS	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$1089	31-12-06	$2½ for 1906	6¾	$37
Shanghai Land Investment Co., Ld.	1888	Tls. 3 900,000	78.000	Tls. 50	Tls. 50	Tls 869,493 e Tls. 170,000	Tls. 61,978	31-12-06	Interim div. of Tls. 3 per share for % 1907	7½	Tls. 100 buyers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 71,685	Tls. 1,973	31-12-06	Final of Tls. 5 making Tls. 8 for 1906	....	Tls. 100 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,519	31-12-06	Final div. of $2.10 making $4.10 for 1906	8¼	$50
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 64,986	31-10-06	Tls. 10 for year ended 31-10-06	15¾	Tls. 64½ buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $110,000	$21,660	31-7-06	$1¼ for year ended 31-7-06	11½	$11
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 36,211	30-9-06	Tls. 6 for year end. 30-9-06 (8%)	11½	Tls. 52 buyers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	7) 8,000	Tls. 100	Tls. 100	none	Tls. 31,469	31-12-06	Tls. 8 for 1906	8½	Tls. 92½ buyers
Soy Chee Cotton Spinning Co., Ld.	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	15½	Tls. 325
MISCELLANEOUS.											
Anglo German Brewing Co., Ld.	1904	$100,000	4,000	$100	$100	none	$906	31-12-06	$7 for 1906	8	$87½ buyers
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12-6	£814	£856	31-12-05	1s. 8d. for 1906	9	$ 6½ ex-div.
Campbell, Moore & Co., Ld.	1886	$12,000	1,200	$10	$10	$9,000	$653	31-12-06	$3 for 1905	....	$20 sellers
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	none	Nil.	31-12-06	$1 for 1904	....	$9.30 sales
China Flour Mill Co., Ld.	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 50,000	Tls. 889	31-12-05	Final of Tls. 5 making Tls. 10 for 1905	15½	Tls. 60 buyers
China Light & Power Co., Ld.	1901	$550,000	50,000	$10	$10	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$5½ buyers
Do. do. Special Shares	1907		17) 50,000	$1	$1						
China Provident Loan & Mortgage Co., Ld.	1898	a $1,000,000	100,000	$10	$10	$115,000	$855	31-12-06	80 cents for 1906	9	$9
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	$50,000	$2,555	31-7-06	$1.30 for year ending 31-7-06	8¾	$15 buyers
Green Island Cement Co., Ld.	1889	$2,000,000	200,000	$10	$10	$411,000 p $500,000	$10,804	31-12-06	Interim div. of 50 cents per share for % 1907	9½	$10½ sellers
Hall & Holtz, Ld.	....	$420 000	21,000	$20	$20	$186,000	$15,002	28-2-07	$2½ for year ending 28-2-07	11	$21 buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$2,953	28-2-07	$1.00 for year ending 28-2-07	7	$14½
Peak Tramways Co., Ld.	1907	$750,000	25,000	$10	$10	none	$2,655	30-4-07	$1 per share for period from 19th Oct. to 30th April, 1907	9½	$10¾ buyers
Do. (New)			50,000	$10	$10						
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	25	k $105,000	$4,361	31-12-06	Final of $18 making $22 for the year ending 31-12-06	9½	$245
Hongkong Rope Manufacturing Co., Ld.	1883	$500,000	50,000	.... $10	10	$65,000	$4,212	31-12-06	$2 for year ending 31-12-06	9	$22½ buyers.
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 i Tls. 27,603	Tls. 10,374	31-10-05	Second interim div of Tls. 7½ making Tls. 15 for account 1907	9¾	Tls. 310 buyers
Mondon (E. L.), Ld.	1902	Tls. 350,000	7,000	Tls. 50	Tls. 50	none	Dr. Tls. 81,060	31-12-05	Tls. 5 for 1902	....	Tls. 25
Philippine Co., Ld.	1904	$675,000	67,500	$10	$10	none	Dr. P. 34,324	31-12-05	None	....	$5 buyers
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 7,990	31-12 06	Final of Tls. 3½ and bonus of Tls. 1½ for year ending 31-12-06	4½	Tls. 105½
Shanghai Horse Bazaar Co., Ld.	1904	Tls. 270,000	5,400	Tls. 50	Tls. 50	Tls. 67,323	Tls. 9,751	31-12-05	Tls. 4 for 1905	....	Tls. 45 sales
Shanghai Pulp & Paper Co., Ld.	----	Tls. 450,000	4,500	Tls. 100	Tls. 100	Tls. 45,000 e Tls. 8,000	Tls. 3,354	31-12-06	Final of Tls. 5 making Tls. 10 for 1906	12½	Tls. 80 sellers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 w Tls. 50,000	Tls. 7,843	31-10-06	Final of Tls. 6 making Tls. 10 for 1906	8¼	Tls. 120 sales
Shanghai Waterworks Co., Ld.	1881	£288,000	8,175 7,200	£20	£20 £15	Tls. 190,000	Tls. 85,592	31-12-05	Int. div. of 15|- for half-year 06 Int. div. of 5|- for half-year 1906	....	Tls. 300 buyers Tls. 270
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $41,934	28-2-06	None	....	$22
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	214	31-5-06	30 cents (old) and 15 cents (new) for year ended 31-5-06	4½	$7
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 e Tls. 4,000	Tls. 1,012	30-4-05	Interim of Tls. 4 for year 1905-6	....	Tls. 197
Union Waterboat Co., Ltd.*	1905	$500.000	16) 50,000	$10	$10	none	$349	31-12-06	First year	....	$12½
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$25,000	$752	31-5-06	70 cts. on 9,900 ord shares & 9.90 on 100 Founders for year endg. 31-5-06	6½	$10¾ buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 $25,000	$5,482	31-12-06	Final of 40 cts. making 80 cts. per share for year ending 31-12-06	7¼	$11 buyers
William Powell, Ld.	1901	$150,000	15,000	$10	$10	e $4,500	$182	30-6-06	Final of 30 cents making 80 cents for year ending June 30t1h 906	10	$8
Weeks & Co., Ld.	....	$400,000	20,000	$20	$20	$10,000	$6,898	28-2-07	Final of $1.20, making all $2 for year ending 28-2-07	10	$21 buyers.

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par.
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 99
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	Tls. 105
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431.960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	||	Half yearly, March 31st and Sept. 30th	Tls. 97½.
China Light and Power Co., Ltd. 6% Debentures of 1907	....	$500,000	$100	....	Half yearly, Jnne 30th and December 31st.	par.

(Closing quotations from "par." to "Tls. 97½." bracketed: Plus accrued interest)

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 5,725 shares unissued.
2 First issue of 60,000 of which 10,411 unalloted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unalloted.
6 1,616 shares unalloted.
7 842 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 0,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 198 shares unissued.
15 22,250 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government-Kuping Tls. 5,000,000.
* Based on last year's dividend.
** Based on present dividend.
|| Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
Dr Deficit.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, July, 1907)

Date of Formation	Capital	Capital paid up	No of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	....		Belat Tin Mining Co., Ltd	11.25	11.75	$11.50
1907	$300,000	225,000	22,500*f**	10	10	....		Bruang Ltd	....	9.00	9.00
1903	£400,000	350,000	350,000*a*	1	1	....		Duff Development Co., Ltd	2.10	2.25	2.25
1901	$600,000	600,000	60,000	10	10	....	10% interim for 1906	Bruseh Hydraulic Tin Mining Co., Ltd	....	15.00	15.00
1905	£30,000	30,000	30,000	1	1	....	3/- during 1906	Jeher Hydraulic Tin Mine, Ltd	10.50	....	10.50
1907	$400,000	$375,000	37,500*b*	10	10	....		Kanaboi, Ltd	9.00	9.50	9.00
1901	£60,000	60,000	60,000	£1	£1	....	-/6 interim for 1907	Kinta Tin Mines, Ltd	14.00	14.25	14.00
1906	£100,000	£90,000	90,000*c*	£1	£1	....		Kledang Tin Mining Co., Ltd	14.25	14.50	14.50
1905	$150,000	99,000	9,900*d*	10	10	6,000	55% for 1906	Kuantan Tin Mining Co., Ltd	....	22.00	21.50
1906	£120,000	£120,000	120,000	1	1	....		Lahat Mines Ltd	....	9.50	9.50
1906	£30.000	£25,000	20,000	£1	£1	....		Malaya and Siam Corporation, Ltd	....	....	£1 12*s*. 6*d*.
			10,000	10/-	10/-	....		" " " " "	....	12½/-	12½/- prem.
1906	$450,000	$337,500	45,000	10	7.50	....		Malacca Tin Dredging Co., Ltd	....	7.50	7.50
1906	£250,000	£145,000	600,000	5/-	2/6	....		Pahang Consolidated Co., Ltd	20/6	20/9	20/6 prem.
			100,000	£1	£1	....		" " " 7% *Pref*	....	....	nominal.
1904	£120,000	100,000	100,000*e*	1	1	....	4/6 interim for 1907	Pusing Lama Tin Mines, Ltd	21.75	22.50	21.75
1905	£27,000	21,750	21,750*f*	1	1	....		Rambutan, Ltd	21.75	22.50	22.00
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust Gold Ming Co., Ltd, *Fully. pd.*	5.25	5.40	5.25
			150,000	1	18/10	....	1/- " " "	*Contrib*	5.25	5.40	5.25
1905	£40,000	35,200	35,200*g*	1	1	....		Redhills Tin Mining Co., Ltd	...	18.00	18.00
1898	f.2.000,000	1,800,000	18,000	100	100	....	52½% for year ending 31-12-06	Redjang Lebong Mining Co	....	....	595.00
1900	$110,000	110,000	22,000	5	5	....	10% for 1907	Royal Johore Tin Mining Co., Ltd	....	2.50	2.25
1907	£80,000	£60,000	40,000	1	1	....		Sempam Tin Mines, Ltd	....	8.50	8.50
			40,000	1	10/-	....		" " " "	....	....	....
1906	$850,000	850,000	85,000	10	10	....	20% interim for 1907	Serendah Hydraulic Tin Ming. Co., Ltd	12.75	13.25	13.25
1899	$230,000	230,000	23,000	10	10	....	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd	...	6.25	6.25
1907	£90,000	70,000	70,000*g**	£1	£1	....		Tekka, Limited	...	....	12.25
1902	£160,000	149,185	149,185*h*	1	1	....	2/- interim for 1907	Tronoh Mines, Ltd	21.50	22.00	21.50
								RUBBER			
1905	£150,000	104,937 10/-	46,500*i*	1	1	....	18% for year ending 31-12-06	Anglo-Malay Rub. Co., Ltd. *Fully paid*	£4.0.0	....	£4 1*s*. 6*d*.
			93,500	1	12/6	....		" " " *Contributory*	£3.7.6	....	£3 10*s*. 0*d*.
1905	$200,000	87,400	1,700*j*	10	10	....		Balgownie Rub. Estate Ltd. *Fully paid*	19.75	....	$19.75
			8,800	10	8	....		" " " *Contributory*	17.75	....	$17.75
1904	£30,000	11,125	7,000*k*	1	1	....		Batu Caves Rub. Co., Ltd. *Fully paid*	....	....	£2 5*s*. 0*d*.
			11,000	1	7/6	....		" " " *Contributory*	....	....	£2 0*s*. 0*d*.
1905	$700,000	610,000	61,000*l*	10	10	....		Batu Unjor Rubber Co., Ltd	20.25	....	$20.25
1903	£70,000	61,000	61,000*m*	1	1	....	5% interim for 1906	Bukit Rajah Rubber Co., Ltd	£5.5.0	....	£5 5*s*. 0*d*.
1906	$150,000	125,000	12,500*n*	10	10	....		Castlewood Rubber Co., Ltd	8.00	8.50	$8.25
1904	£12,000	10,500	6,000	1	1	....	5% to 31-3-06	Cicely Rubber Estates Co., Ltd	....	....	£3 0*s*. 0*d*.
			6,000	1	15/-	....	10% to 31-3-06	" " " " 5% *Pref*	....	....	£2 15*s*. 0*d*.
1905	£75,000	55,000	55,000*o*	1	1	....	10% for year ending 31-12-06	Consolidated Malay Rub. Estates, Ltd	....	....	£2 16*s*. 3*d*.
1906	£310,000	227,783 15/-	181,454*p*	1	1	....	11% for year ending 31-12-06	Highlands & Lowds. Para Rub. Co., Ltd. *Fully paid*	£3.1.0	£3.5.0	£3 2*s*. 6*d*.
			123,546	1	7/6	....	11% for year ending 31-12-06	" " " " *Contributory*	£1.15.0	....	£1 15*s*. 0*d*.
1906	£180,000	£180,000	18,000	1	1	....		Kuala Lumpur Rubber Co., Ltd	....	£1.7.6	£1 4*s* 0*d*
1906	f.1 75,000	f.117,500	80	f.250	250	....		Langen Rub. and Cocoanut Co., Ltd	....	....	f.250.
			460	f.250	125	....		" " " " " "	....	....	f.125.
			160	f.250	250	....		" " " " " *Deferred*	....	....	f.250.
1906	$250,000	225,000	22,500*q*	10	10	....		Ledbury Rubber Co., Ltd	14.00	14.50	$14.25
1895	£50,000	32,332 10/-	10,000	1	1	....		Linggi Plantations Ltd., 7% *Pref*	....	....	
			10,000	1	1	....	15% for 1906	" " " *Ordinary*	£5.2.6	....	£5 2*s*. 6*d*.
			10,000	1	1	....			....	....	....
			10,000	1	5/-	....			£1.15.0	£1.2.0	£3 0*s*. 0*d*.
1906	£300,000	260,625	115,000	1	1	....	7½% for year ending 31-12-06	Malacca Rubber Plantations 7½% *Pref*	....	£12.6	£1 2*s*. 6*d*.
			140,000	1	1	....		" " Ordinary *Fully paid*	....	17/-	17/-
			45,000	1	2/6	....		" " *Contributory*	....	....	nominal.
1903	£30,000	20,000	20,000*r*	1	1	....	40% for 1906	Pataling Rubber Estates Synd. Ltd	....	....	£6 10*s*. 0*d*.
1906	$250,000	225,000	22,500*i**	10	10	....		Bagalla Rubber Co., Ltd	....	9.00	$9.00
1904	£20,000	8,794	2,588*h**	1	1	....		Sagga Company Limited	...	£2,0.0	£1 17*s*. 6*d*.
			12,412	1	10/-	....		" " "	....	....	....
1904	$100.000	85,000	850*s*	100	100	....	20% for year ending 31-1-07	Sandycroft Rubber Co., Ltd	305.00	....	$305.00
1898	£30,000	26,762 10/-	26,300	1	1	....	40% for 1906	Selangor Rubber Co., Ltd	....	....	18/-
			3,700	1	2/6	....		" "	....	....	....
1903	$250,000	208 000	1,300*t*	100	100	....		Sing. & Johore Rub. Co., Ltd. *Fully paid*	....	195.00	$195.00
			1,200	100	65	....		" " " *Contributory*	....	£2.0.0	£2 0*s*. 0*d*.
1905	$100,000	83,550	8 355*u*	10	10	....		Sione Rubber Co., Ltd	....	....	£2 0*s*. 0*d*.
1904	£50,000	24,420	6 920*v*	1	1	....		Sungei Way (Selangor) Rub. Co. Ltd	1.10.0	....	£1 10*s*. 0*d*.
			35,000	1	10/-	....		" " " *Contributory*	....	....	£7 7*s*. 6*d*.
1904	£60,000	50,000	50,000*w*	1	1	....	55% for 1906	Vallambrosa Rubber Co., Ltd	....	....	....
								GENERAL			
1894	£5,377,10.0	£4,648.15/-	7,438	12/6	12/6	£814,11.9	10% dividend for 1905	Bells Asbestos Eastern Agency, Ltd	....	....	7.00
1898	$225,000	225,000	4,500	50	50	112,500	15% & 2½% bon. for yr. end. 31-12-06.	Fraser & Neave, Ltd	145.00	....	145
1865	$10,000,000	10,000,000	80,000	125	125	10,000,000*a** 11,000,000*b** 250,000*c**	£1 15*s*. & bonus of £1 at ex. 2*s*. 3½*d*. making $40.80 for 1906	Hongkong & Shanghai Bankg Corptn	....	....	670.00 ex new issue
1905	$2,400,000	2,400,000	18,000	100	....	40,000	7½% for year ending 31-10-06	Howarth Erskine, Ltd	....	170.00	170.00
			6,000	100	....	....	7% for year ending 31-10-06	" " 7% *Pref*	....	....	120.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-06	Katz Brothers, Ltd. *Deferred*	....	....	135.00
			4,000	100	100	....	8% " " " " "	" " 8% *Cum. Pref*	....	....	nominal.
1901	$34,000	34,000	3,400	10	10	....	20% for year ending 31-10-06	Maynard & Co., Ltd	....	....	21.00
1899	$875,000	875,000	6,000	100	100	150,000	5% for year 1906	Riley, Hargreaves & Co., Ltd	110.00	110.50	110.50
			2,750	100	100	....	7% for year 1906	" " " " 7% *Pref*	110.00	....	110.00
1903	$600,000	240,000	24,000*x*	10	10	....		Singapore Cold Storage Co., Ltd	....	7.00	7.00
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-06	Singapore Dispensary Ltd	....	55.00	55.00
1884	$200,000	200,000	2,000	100	100	35,000	20% for year ending 31-12-05	Straits Ice Co., Ltd	....	150.00	150·00
1890	$500,000	500,000	5,000	100	100	400,000 241,075*d**	10% for 1906	Straits Steam Ship Co., Ltd	190.00	....	190.00
1904	$40,000	$30,280	2,535*y*	10	8	....		Straits Tobacco Factory, Ltd	6.00	....	6.00
			1,000	10	10	....		" " " "	....	....	nominal.
1887	$3,000,000	2,500,000	250,000*z*	10	10	1,000,000 1,087 084*e**	10% & 5% bon. ½ yr. end. 30-9-06	Straits Trading Co., Ltd	....	55.00	85
								DEBENTURES			
								Howarth Erskine, Ltd. 6% ....$ 600,000	....	....	3% prem.
								Singapore Municipal 6% 400,000	....	....	20% prem.
								" " 5% 1,878,000	....	....	2% prem.
								" " 4½% 1,600,000	....	5%	5% prem.
								" " 4% 602,900	....	....	2% dis. nom.
								Riley, Hargreaves & Co., Ld. 6% .225,000	....	.3%	3% prem.
								Tanjong Pagar. Dock Board 6% ...250,000	....	....	3% prem.
								" " " 5% ..1,050,000	....	....	par.

a 50,000 unissued
b 2,500 "
c 10,000 "
d 5,100 "
e 22,000 "
f 5,250 "
g 4,800 "
h 10,815 "
i 10,000 "
j 9,500 "
k 12,000 "
l 9,000 "

m 9,000 unissued.
n 2,500 "
o 20,000 "
p 5,000 "
q 2,500 "
r 10,000 "
s 150 "
t 300 "
u 1,645 "
v 8,080 "
w 10,000 "
x 36,000 "

y 465 unissued.
z 50,000 "
*a** Special Gold Reserve Fund
*b** Silver Reserve Fund.
*c** Insurance Fund.
*d** Sundry Reserves.
*e** Sundry Reserves.
*f** 7,500 unissued.
*g** 20,000 "
*h** 5,000 "
*i** 2,500 "

YOKOHAMA SHARE QUOTATIONS

Courtesy A. C. Hutton Potts, Share and General Broker, Yokohama, July 1907

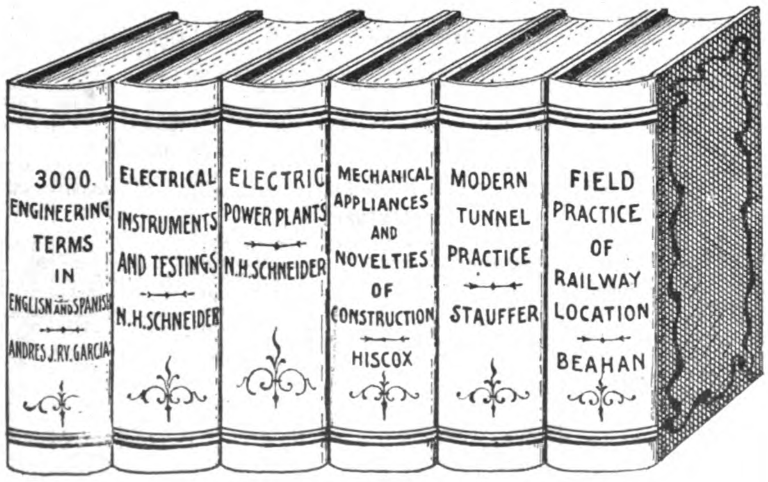
STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVED FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2800	-Y- 10	-Y- 10			31-12-06	8%	for 1 year	10 Sellers.
Club Hotel, Ltd.	185,000	1850	100	100	3,000	-Y- 943.52	31-3-07	7%	for 1 year	80 Sellers.
Grand Hotel, Ltd.	500,000	5000	100	100		-Y- 13,990.77	31-12-06	6%	for ½ year	160 Sellers.
Helm Bros., Ltd.	186,000	3720	50	50	22.500	-Y- 2,916.83	31-12-06	20%	for 1 year	85 Sellers.
Langfeldt & Co., Ltd.	150,000	1500	100	100		Dr. 20.304.15	31-12-06		for ½ year	45 Buyers.
C. Nickel & Co., Ltd. †	500,000	20000	25	25		1,470.97	31-10-06	16%	for 1 year	41 Bnyers.
Yokohama Engine and Iron Works *	500,000	10000	50	50	50,000	-Y- 16,282.42	31-5-06	35%	for 1 year	90 Sellers.
Oriental Hotel, Ltd., Ordinary }	250,000	3000	50	50	62,285.42		31-8-06	15%	for 1 year	75 Nominal.
Oriental Hotel, Ltd., Preference }		2000	50	50				8%	for 1 year	64 Sales.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10000	100	100			First Year.			105 Sales.

† 285,000 unissued. *-Y- 390,000 issued.

‡ 475,000 unissued. 110,000 unissued.

DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	85 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	105 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	110 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	DIVIDENND PER ANNUM.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 95.50
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 93.50
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 93.50
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 87.00
War. Bonds (Gunji)	100	100	5%	June and Dec.	,, 87.00
Imperial 5% Bonds (Goburi)	100	100	5%	March and Sept.	,, 87.00
Imperial Government 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 87.00
Kobe Water Works Bonds	100	100	6%	June and Dec.	,, 98.00
Osaka Harbour Bonds	100	100	6%	June and Dec.	,, 98.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 98.00
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 101.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 102.00
Sanyo Railway Company Debentures (2nd issue)	100	100	6%	April and Oct.	,, 98.00
Tokyo Stock Exchange Company	50	50	40%	June and Dec.	,, 162.00
Hokkaido Colliery (Tanko) Steamship Company Limited	50	50	15%	July and Jan.	,, 114.30
Hoden Petroleum Company, Limited	50	50	30%	April and Oct.	,, 141.00
Yokohama Electric Tramway Company, Limited	50	50	7%	July and Jan.	,, 49.90
Tokyo Railway Company Limited	50	50	9%	June and Dec.	,, 74.95
Keihin Electric Railway Company, Limited	50	50	13%	June and Dec.	, 100.00
Hokkaido Hemp Weaving Company, Limited	50	50	13%	July and Jan.	,, 61.00
Kanegafuchi Cotton Spinning Company, Limited	50	50	20%	July and Jan.	,, 126.80
Tokyo Cotton Spinning Company, Limited	50	50	20%	July and Jan.	,, 87.00
Fuji Gassed-Yarn Company, Limited	50	50	25%	July and Jan.	,, 121.50
Nisshin Cotton Spinning Company, Limited	50	12½	—	——	,, 14.00
Fuji Paper Mill Company, Limited	50	50	10%	June and Dec.	,, 58.00
Yokohama Dock Company, Limited	50	33	15%	June and Dec.	,, 70.00
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 113.00
Nippon Sugar Refinery Co., Ltd. (Tokyo)	50	50	20%	June and Dec.	, 94.75
Dai Nippon Beer Brewery Company, Limited	50	50	15%	July and Jan.	,, 114.50
Tokyo Gas Company, Limited	50	50	15%	July and Jan.	,, 99.80
Kirin Brewery Company, Limited	50	50	—		,, 90.00
Tokyo Electric Light Company Limited	50	50	10%	June and Dec.	,, 70.00
Yokohama Electric Light Company, Limited	50	50	15%	July and Jan.	,, 84.00
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	, 122.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 82.50



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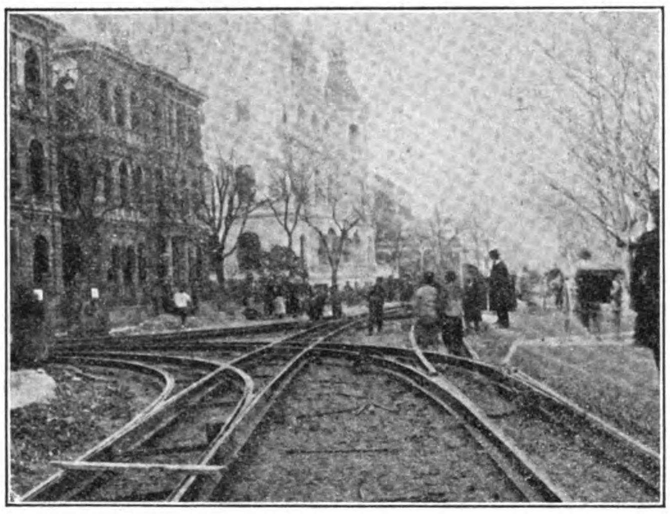
THE FAR EASTERN REVIEW

COMMERCE ❂ ENGINEERING ❂ FINANCE

VOL. IV. MANILA, P. I., SHANGHAI, AND YOKOHAMA, SEPTEMBER, 1907 No. 4.

SHANGHAI TRAMWAYS

For a number of years the question of the introduction of tramways in the Setttlements has been discussed by the council and rate-payers, and in April 1903 the council entered into an agreement with the British Electrical Engineering Co. and the British Electric Traction Co. for a system calculated to supply the requirements of the Settlements. This agreement, however, fell through and at a subsequent meeting of the rate-payers, the council were instructed to advertise for fresh tenders and authorized to accept what, in their opinion, was the most favorable offer for the concession



SHANGHAI TRAMWAYS—COR. NANKING ROAD AND THE BUND

SECTION NANKING ROAD SHOWING WOODEN BLOCK PAVEMENT

Eventually the offer of Messrs. Bruce Peebles & Co., Ltd., of Edinburgh and London was accepted, and they have carried out the construction of the track in a highly creditable manner.

Of course the usual annoyance has been felt owing to the excavating of the streets, but it is generally conceded that the work has been done with as little public inconvenience as possible.

As will be seen from the accompanying diagram the tramway system of the Foreign Settlement, which is now nearing completion, will, when joined up as is proposed with the tramways about to be constructed in the French Concession, form a ready means of access to all parts of the Settlements. An agreement has been entered into with the council for the supply of power, and direct current at 500 volts will be supplied to the Tramway Company at a traction switchboard erected in the Municipal Lighting Station in Yuhang Road. A special plant consisting of two sets of Bellios & Morcum engines and two Bruce Peebles 600 K. W. direct current generators is about to be installed for this purpose. The engines are to be of the vertical enclosed high speed type, and are designed to run at 230 revolutions per minute.

A supplementary motor generator of 300 K. W. capacity capable of producing either direct current for the tramways or alternating current for lighting purposes is also being installed.

The route mileage of the tramways is approximately sixteen miles, 6½ miles of which are double track and the remaining 9½ miles being single track with passing loops at frequent intervals. The total length of equivalent single track being approximately 25½ miles.

The track is constructed to the meter gauge, and the roadbed is generally of a Macadam construction, with granite setts 4″×9″×5″ deep on either side of the rails which rest on a 6 inch bed of concrete, extending the full width of the track and to 18 inches beyond.

Along the Bund and in the Nanking Road, the principal thoroughfares used by foreigners, wood paving has been adopted. The blocks which are 6″×3″×4″ in depth, being laid close joined on a six inch bed of concrete, floated over with a cement floating of three parts of sand to one part cement. The blocks were thoroughly tarred before laying and are afterwards grouted and top dressed with a boiling mixture of tar and pitch, and covered with a coating of course sand. The blocks used are hardwood blocks of Australian jarrah wood, supplied by Messrs. Millars & Jarrah Co., Ltd., and this paving, which is the first wood paving that has been used for roadwork in China, promises to prove very satisfactory.

The rails are of the grooved girder pattern weighing ninety pounds to the yard, and of the British Standard.

On the Committee's No. 1 Section heavier rails of ninety-six pounds to the yard are being used with a slightly wider groove on sharp curves.

The joints are formed with B. S. C. No. 1 Section fishplates fished up to the rails and bolted into place by six one-inch bolts.

Forest City protected copper bonds are inserted under the fishplates two to each joint, to bend the rails together, and the track is also cross-bended at short intervals to ensure a satisfactory return circuit.

Bayliss, Jones & Bayless patent spread nine feet apart to keep the rails to gauge.

The points and crossings are of manganese steel and 12 feet in length having a radius of 150 feet. The angle of the crossing is 1 in 8.

The overhead trolley wires are supported where the track is single and the width of the roadway permits on bracket arms, which are carried on steel poles planted six feet in the ground and spaced 40 yards, and where the track is double similar poles with span wire suspension has been adopted. The trolley wire is of circular section 3-0 Standard Wire Gauge, and is fixed at a height of 21 feet from the ground, Phoopher bronze ears being used for the suspension.

Insulators, guard wires, section switches, lighting arresters, choking coils, etc., are provided in accordance with the rules and regulations of the British Board of Trade and a complete telephone system is also being installed, providing means of communication between the section boxes, power house, and car depot.

The transmission cables are all being laid underground and will feed the overhead line at convenient points.

Special attention has been given to the insulation of these cables which are being supplied to Messrs. Bruce Peebles & Co. by Messrs. Callendars Cable Co. and these are being laid on the solid system, the cables resting on glazed earthenware bridge pieces in vitrified earthenware troughs, and the vacant spaces between the cables and the troughs being filled with refined Trinidad bitumen.

(Continued on page 100.)

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

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MANILA, SHANGHAI AND YOKOHAMA, SEPTEMBER 1907

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THE TONKIN-YUNNAN RAILWAY

The construction of this railway has been the subject of much criticism of the French authorities from time to time in regard to the treatment of the laborers employed. It now develops that these reports were unfounded, according to the most reliable information, and that no less than the report of C. H. Brewitt-Taylor, commissioner of customs at Mentze for the year 1906. The commissioner makes particular reference to this important work and goes extensively into the conditions good and bad with which the French colonial government had to contend. His conclusions point to a most humane policy in dealing with the labor. This included the expenditure of large sums of money in the maintenance of hospitals and in providing adequate medical service throughout the entire construction.

The criticisms appear to ha e been based on the surface indications of the battle with disease in the unhealthy Namsi valley. This section once completed there appears to have been a prompt elimination of complaint of any kind and it is well-known that the battle against native ignorance was far more serious than that against disease. The French government, according to the report of the commissioner, did everything in its power to alleviate suffering and to make the laborers as comfortable as possible, but this task was no easy one when the lack of co-operation on the part of the natives in battling with disease is considered. In fact the work on this unhealthy section of the road was abandoned in the summer and resumed in the winter months in order not to expose the laborers.

The wages paid ran all the way from 40 to 60 cents a day and, in addition, rations were supplied. The cost per day of the average laborer is estimated at about $1.20 so that the claim that they were underpaid does not seem to be well founded. To feed 50,000 laborers is no small undertaking, and it might be expected that grumbling broke the monotony in more than one camp. However, there does not seem to be any justification for the repeated attacks on the French management. Indeed it would seem that a well organized attempt was made to discredit the French government and to encourage among the Chinese the prejudice against foreign investment. It is most fortunate that the enemies of the management have been confounded and the public set right by the unequivocal statement of Commissioner Brewitt-Taylor.

Referring to the magnitude of this undertaking the *Hongkong Telegraph* says:

"It is stated that the direct distance between Hokow and Yunnanfu is nearly 300 kilometers; that along the line, graded that no incline exceeds 25 millimeters per meter, and with no curve of less than 100 meters radius, is 463 kilometers. The country being wholly mountainous, of red clay and limestone, tunnels and bridges are numerous. There are 147 tunnels, aggregating 15½ kilometers in length, the longest, now nearly finished, being 650 meters. Of these, 105 have been actually pierced and are in course of enlargement to the necessary section. Only four are as yet untouched. There will be 74 bridges of all sorts over 20 meters long, some of masonry, some of steel. The longest in masonry will be 70 meters with 10 arches; the longest in steel, of 17 girders of 8 meters each. One steel bridge of 65 meters span is a single girder. The line starts from Hokow at a height of 90 meters above sea level, passes through a 315-meter tunnel at Milati at a height of 1,700 meters, thence descends to Amichow height 1,063 meters, passes Iliang at a height of 1,635 meters, and Shuitang at 2,019 meters, whence it descends to Yunnanfu, 1,886 meters."

SUGAR BARONS ARMING FOR THE FRAY

For the first six months of the present year the policy of the American Sugar Industry and Beet Sugar Gazette, one of the leading sugar journals of the world, was marked by a spirit of fairness that was remarkable in view of the selfishness of the interests in America that it is supposed to represent. But now all that is changed. In the issue of that journal under date of July 20, the management announces the restoration to the head of the editorial department of Mr. Frank Roderus and in the same column repudiates the policy of the journal for the six months ending June 30. We quote:

"The new management, which is really the old with a short interregnum, takes this opportunity to repudiate unqualifiedly the editorial policy pursued during the past six months. It is needless to define what that policy was. Suffice to say that in the absence of a management possessing adequate practical acquaintance with the industry and experience in the conduct of this publication as well as in the history of American sugar, a policy was pursued which was not satisfactory to the trade nor in harmony with the past record of this publication.

"Perhaps the most important question that will come up for consideration in the near future is that of tariff revision, or tariff concessions to other sugar producing countries in connection with the colonial policy of this country.

"It is true that the latest semi-official utterance from the present administration contains assurances that there will be no tariff revision proposed by the Republican party before the next presidential election. It is possible, however, that this assurance refers only to a general revision of the protective tariff, while sugar may be taken up in connection with colonial affairs, which the general public would not consider as directly connected with the tariff question. In the past history of the sugar industry in this country it is just such covert attacks that have proved the most dangerous and injurious to American farmers and manufacturers. The concessions made some years ago to Cuba are an instance in point. This matter did not come up under the head of tariff revision, but under the specious plea of helping the Cubans, who were then in a more or less dependent position, not differing very greatly from that of a colony except in matter of form. It will not do, therefore, for American sugar men to rest assured in the statements of policy with regard to the tariff in general, and to relax their watchfulness. This journal means to insist that the party in power shall abide by the declaration embodied in the Republican platform of June, 1896, which said: 'The Republican party favors such protection as will lead to the production on American soil of all the sugar which the American people use and for which they pay other countries more than $100,000,000 annually.' "

"It is possible that the time may come when the American sugar industry will be sufficiently developed to compete successfully with that of other sugar producing countries. But until that time arrives, if it ever does, this journal will continue to urge upon the sugar men of the United States the necessity of constant effort, and watchfulness *to prevent further favors being granted to tropical sugars*. Other countries have successfully developed their domestic sugar industry by the assistance, not only of protection, but of bounties, until today their industries are able to stand without these aids. The American sugar manufacturer does not ask any bounty; he merely asks protection until such time as the natural development of the industry will enable him to compete on an equal footing with sugar producers in other countries."

So now we are to understand that any kind words, any spirit of fairness that has crept into the columns of the journal during the months it did not happen to be under the selfish supervision of the sugar trust, are repudiated and that a campaign is to be inaugurated with the object in view of serving monopoly at the expense of the interests of American manufacturers, and the Filipino people who are justly entitled to special privileges not accorded foreign nations, so long as those privileges do not endanger any American industry.

The sugar interests of the United States have been invited to point out in what way the importation of Philippine sugar into the United States free of duty to an amount not in excess of the shortage annually, woud injure the industry there. Have they responded?

The vote of the House of Representatives on the subject is sufficient answer to that question even if the questionable tactics of the

enemies of the Philippines in the Senate in their desperation, be overlooked. It is another phase of that desperation that has driven the barons to seize a free and fair press and exploit sentiment to further their ends.

Truly there is reason for the sugar barons to consider their case desperate. The manufacturing interests are beginning to have something to say about the treatment of the Philippines. The announcement by the friends of Philippine sugar that they would oppose any measure favorable to it, that would endanger the American sugar industry, has engaged the attention of the manufacturers of America who previously labored under the impression that the Philippines desired to flood the American market with sugar and drive the American sugar producers out of business. They have investigated the matter and find that in the next century the Philippines could not supply the shortage in America let alone the increased difference each year between the amount produced and the amount consumed. The manufacturers have asked the sugar barons to point out where the importation of Philippine sugar would injure the home industry and up to date this question remains unanswered.

The manufacturer has machinery to sell and in the Philippines there is every indication of a splendid market if the Filipinos are given a square deal. The manufacturers of the United States are opposed to any legislation liable to interfere with the development of any American industry. So are the Americans in the Philippines, yet they ask and ask with a clear conscience that Philippine sugar be given free entry into the United States for an amount not greater than the difference between the amount of sugar produced in the United States and the amount consumed in the United States.

That the friends of the Philippines will continue the battle for fair play in the next congress, is to be expected and the victory is practically conceded. This seizure of *The American Sugar Industry and Beet Sugar Gazette* by the barons and the rudeness which characterized it, demonstrates how alarmed, how hysterical they have become over the prospects now that they realize that the people of the United States refuse to be bamboozled longer by the time worn sophistries of monopolists.

Public sentiment has undergone a remarkable change since the Philippine delegation first started after a reduction of the tariff for Philippine sugar. Slowly but surely, the effect of the campaign of misrepresentation throughout the United States carried on under the direction of the sugar barons has been overcome. By the time the question is again being discussed by Congress, the trust will realize that it is useless to struggle further against the inevitable and even the attempt to manufacture sentiment to overcome the prevailing spirit in favor of justice to the Philippines, will have proven futile.

PHILIPPINE GOVERNMENT WANTS ONLY LEGITIMATE ENTERPRISE

In his refusal to grant The Philippine Plantation Co. a license to do business in the Philippine Islands for the reason that he was not satisfied as to the fair dealing of the company, the Hon. W. Cameron Forbes, Secretary of Commerce and Police for the Philippine Islands, went on record as opposed to the encouragement of any enterprise that could not survive the closest scrutiny, and especially an enterprise that has to do with the development of any Philippine industry.

His refusal to grant a license to the Philippine Plantation Co. was based on representations made by Messrs. A. L. Wisner & Co. of New York, acting as agents of the company in the sale of stock, in pamphlets put in circulation, and which the Secretary of Commerce and Police declares were misleading. These pamphlets announced as profits, for the purpose of attracting capital, an anticipated dividend of 40%. They were issued over a year ago and there is no indication of any dividend being declared, from earnings, up to the present time. This apparent desire on the part of the agents of the company to mislead the public as to actual conditions in order to sell the stock and the fact that the company had not forced withdrawal of the pamphlets nor otherwise condemned the methods of its agents, impressed Mr. Forbes that on the question of fair dealing alone, he could not authorize the granting of a license.

This attitude on the part of the Philippine government should have the effect of inspiring confidence in Philippine investments and dis courage wild cat schemes that tend to discourage even the legitimate.

So far as can be learned, the territory to which the Philippine Plantation Co. claims title is one of the most fertile agricultural districts in the islands and with good management the very best results could be obtained in the cultivation of tobacco. A plantation company meeting the requirements of the Philippine Corporation Law could no doubt reap dividends sufficiently large to satisfy the most sanguine investor, and it is to be hopedt hat a reorganization of the company will be effected so that no doubt may be cast as to the legitimacy of the enterprise and the fair dealing of its promoters. In his report to Governor-General Smith Secretary Forbes writes:

"I have the honor to inform you that I have notified the Philippine Plantation Company that I would not approve their application for a license to transact business in the Philippine Islands on the ground that the company has been guilty of unfair dealing in their relations with the public and in the representations which they have made to induce people to subscribe for their stock. Section 68 of Act 1459, THE CORPORATION LAW, empowers the Secretary of Commerce and Police to refuse a license to a foreign corporation when not satisfied of its fair dealing and solvency. In this case I am not satisfied as to the fair dealing of this company."

Commenting further on the status, history and methods of the company, Mr. Forbes says:

"The Philippine Plantation Company acquired what they believed to be a title to some 43,000 acres of land known as the Hacienda de Calabbaco, near Tuguegarao in the Province of Cagayan, from parties who had purchased the land from one Maguigad, both by a contract of sale and at a delinquent tax sale. This title has recently been attacked in court by parties claiming through alleged co-heirs of Maguigad. The property has not been registered under the Land Registration Act.

"In answer to an inquiry from the undersigned, the Attorney-General rendered an opinion that a foreign corporation organized for agricultural purposes was prohibited by the Act of Congress approved July 1, 1902, and Act 1459 of the Philippine Commission, from holding and cultivating more than 1024 hectares of land.

"The company was organized with a capital of ten million dollars, divided into ten million shares of one dollar each. The probable object in making the par value of the shares so small was to induce people who had but one dollar or small multiples thereof to purchase their stock. This stock was offered for sale, according to the circular, at thirty five cents and I have reason to believe it has been sold at a greater discount. The fiscal agents of the Company, A. L. Wisner and Company, of New York, can not be ranked as the most conservative of banking houses nor have the enterprises which they have financed been always of the most conservative type.

"The circulars which were published by A. L. Wisner and Company in the United States make representations which are calculated to mislead, both in regard to the area cultivated and the character of the work accomplished, and also as to the probable profits, which they represent as four million dollars United States currency a year, or forty per cent of the par value of the stock. While small acreages of land in Hawaii, and possibly other places, have been coaxed into yielding profits which if extended over the whole of the 43,000 acres claimed by the Company would undoubtedly yield a profit of that sort, there is no parallel to such profits in the Philippine Islands and there is nothing that I have been able to learn of the prospects of the company which would lead me to believe they are justified in sending out any such estimates.

"The company purports to have paid one dividend to date. I have information that this could not have been done out of the profits from the cultivation of this land in Cagayan; a fact that would seem to indicate that it was paid out of the money received from the sale of securities. This lends color to the belief that the whole enterprise is one designed to induce credulous people to give up their money, and not one which will redound to the credit of the company or to the Government which allows enterprises of this kind to use its laws to fulfil their purposes."

COMPLETION OF THE KALLANG TUNNEL

After four years of continued effort on the part of the contractor, the Kallang Tunnel at Singapore, which taps the upper waters of the Kallang river and carries it to the impounding reservoir, has been carried to a satisfactory completion and Contractor W. Palliser is the recipient of much praise from the residents of Singapore for the manner in which he overcame every difficulty in this most discouraging undertaking.

The entire length of the tunnel is about 1,500 feet, and its diameter, six feet. The maximum flow is about ten million gallons a day, and in view of the construction of the proposed new reservoir, this source of water supply will be warmly welcomed by the people of Singapore at this time.

The tunnel is divided into three sections. The open work cut is followed by a section of brick work, and the last section is of cast iron construction. Many engineering difficulties were developed as the work progressed and plan after plan had to be abandoned in view of the peculiar and changing character of the ground through which the tunnel was projected. Of this the *Singapore Free Press* says:

"The work of making this tunnel gives one an idea of what engineering difficulties may be met and successfully overcome by perseverance. The beginning was the open cut, and after that system had to be abandoned came the tunnelling with wooden propping and building in a brick tunnel. When this began to sink the system had to be abandoned and the shield was sent for from home. This worked for a time with the cast iron lining, but then it was found that this even was not sufficient and compressed air had to be used. The strength varied from one to two atmospheres, being at most 25 lb. to the sq. foot, and at least about 17 lb. to the sq. foot. This system was successful but as indicating the nature of the soil it may be said that in the iron lining are plug holes which are used to work through for grouting outside but in the soil encountered there was no possibility of grouting, for if once a plug were removed, the stuff came spurting through.

"Beginning the cutting in alluvial deposit, the workmen found embedded far in tree trunks and all sorts of queer things, and emerging from the alluvial they came to kaolin and next to disintegrated granite, that is uncemented granite, and finally in the heart of the hill to granite pure. Emerging from this much the same series of grounds was met on the farther side. The greatest difficulty was met with in the disintegrated granite. This was stuff which stood stiff enough till one started to work on it and it got wet, then it simply slid away like a quick sand and it was in this stuff that the disastrous accident occurred in which five coolies lost their lives through being buried under the fallen earth."

GERMAN SHIPPING SUBSIDIES

The German government has issued a statement covering the traffic on subsidized steamers for the year 1905.

On the lines to East Asia and Australia, says a Hamburg correspondent of an exchange, total goods traffic amounted to 311,173 tons valued at m.343,870,000, against 300,449 tons valued at m.357,820,000 in 1904. There is only an increase to report for the outgoing steamers; the homeward bound ships carried 772 tons less. The amount of imports was in 1905 m.29,748,000 less than in 1904, while the value of exports increased by m.15,807,000 The passenger traffic amounted on the East Asiatic line to 19,290 persons, against 23,269 in 1904, and on the Australian line to 11,279 persons against 10,882 in 1904.

SHANGHAI TRAMWAYS

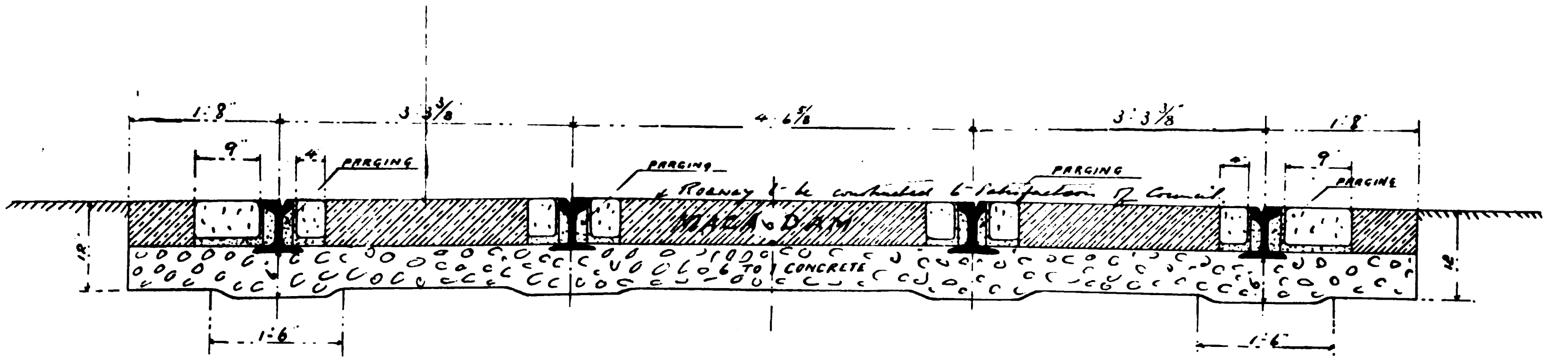
(Continued from page 97)

The car shed is situated at the far end of the Bubbling Well Road, and will provide accommodation for 70 cars, with the usual repair shops and offices.

The cars are to be of the single deck pattern divided into two compartments to seat 8 first-class passengers and 22 second-class passengers.

The bodies will rest on single trucks having a 6 feet 6 inches wheel base, and each car will be fitted with two twenty-five horse power Bruce Peebles standard traction motors.

The controllers of the same company's manufacture will have series parallel control of the two motors, and will be fitted with four series four parallel, and six brake notches.



DOUBLE TRACK ROADBED CONSTRUCTION, SHANGHAI TRAMWAYS

BATTERY FOUNDATIONS OF THE KUK-SAN-DONG MILL, KOREA

In the spring of 1905 this company, the Oriental Consolidated Mining Co. of Korea, began the erection of a 20 stamp addition to the 20-stamp mill at Kuk-San-Dong camp, installing concrete mortar piers and battery foundations. These were of a somewhat unusual type, owing to the local conditions, the most important of which is the distance from a base of supplies and a large foundry.

The machinery had been ordered by cable to be a duplicate of the twenty stamps in operation, and to have heavy mortars for concrete piers. The mortars supplied, pattern No. 48, United Iron Works, of San Francisco, were designed for vertical anchor bolts 1¾ in. diam., the base being 36 in. wide by 56 in. long, and the weight, with liners, about 7,300 lb. The mortar was to rest on a ¼-in. rubber blanket placed directly on the concrete pier, and the anchor bolts were to extend vertically downward 5 to 6 in. through 2-in. tubes to a pocket washer 8 in. square bedded in the pier, there being four anchors on each side. Foot-plates for battery posts were not sent, the manufacturers having designed a post extending below the top of the mortar pier to an 18-in. streak-sill resting on a shoulder of concrete, as shown in the front elevation.

In view of the fact that a well placed concrete foundation has no limit of life, it was considered expedient to so design all iron and wood-work in connection with the concrete piers that long interruptions, or the destruction and replacement of any part of the concrete-work as the result of breakage, would be unnecessary. To this end the vertical anchor-bolt holes in the mortars were chipped out, the bolts welded out to 7 ft. 11 in., and set diagonally, slipping in a casing; the pocket washers furnished by the manufacturers fitted at the lower end against a straining block set in an easily accessible pocket, and angle washers made at the camp with double nuts at the upper end. The piers were enlarged from designs furnished to 6 ft. at the top by 12 ft. at the bottom against 4 by 8 ft., and the shoulder carrying the streaksill was lowered to 5 ft. 3 in. from the mortar-base.

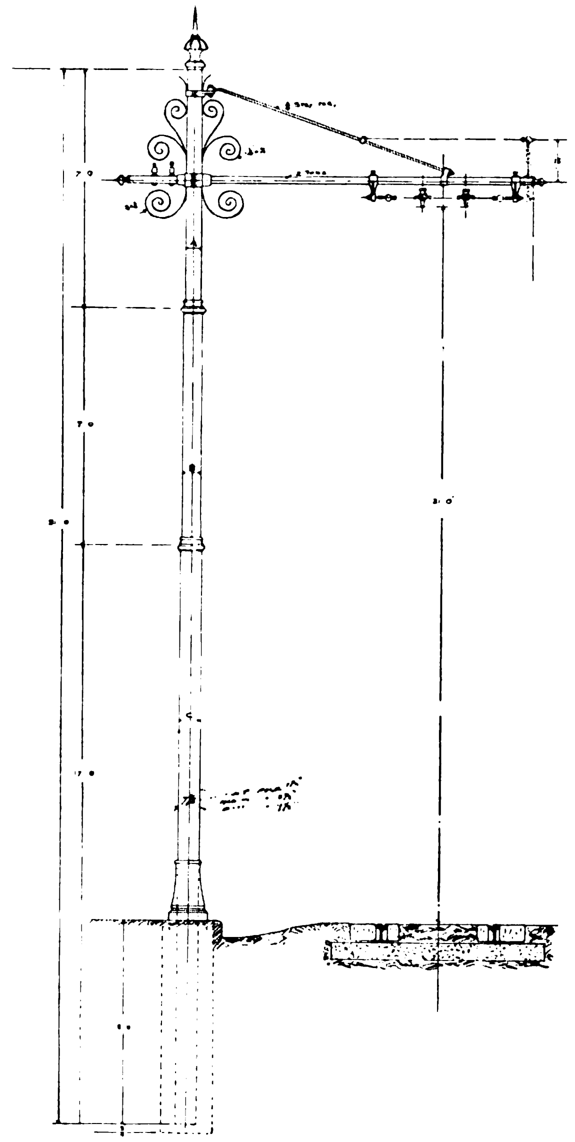
The materials for concrete were carefully selected; the stone was a hard grano-diorite from the mine-dump put through a Blake crusher set at 1½ in., and was washed free of clay by a hose under pressure. The sand was ordinary river sand, granitic in character. The cement was the best grade of Portland. An excess of water was avoided in mixing, and care was taken in tamping to insure a high density for the finished pier. The surface was left uneven over night, and when finally brought to the finished height was not capped with neat cement, but completed with the rough concrete. The piers were then seasoned for three months. The proportions used were as follows:

First portion	1 cement	1 sand	5 stone	for 3 ft.
Second "	1 "	1 "	4 "	" 2 ft. 6 in.
Third "	1 "	1 "	3 "	" 2 ft.

In my opinion this last mixture was richer in cement than was necessary, the 1—1—4 mixture containing sufficient mortar to fill all voids on the 1½-in. run of crusher-rock used.

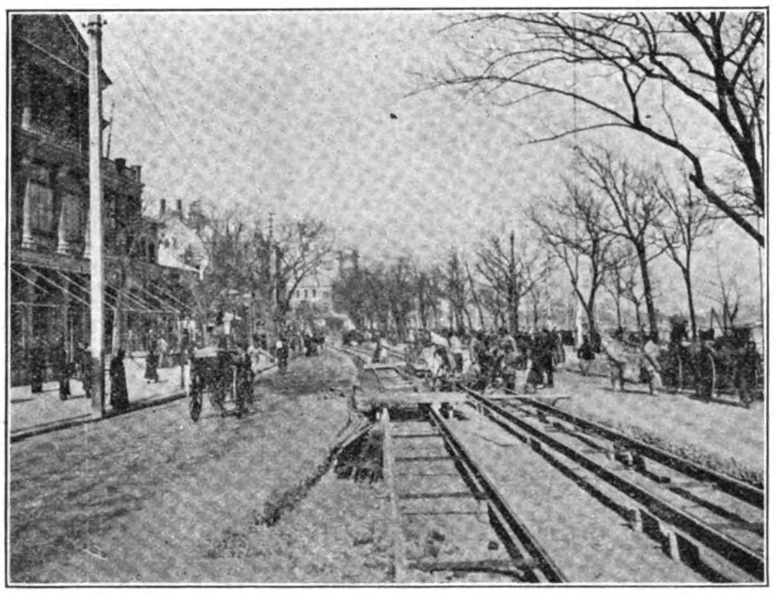
This mill has been in continuous operation for fifteen months, and has developed only one fault; the anchor-bolts in the streak-sills and battery posts were not heavy enough, and have been replaced by 1½-in. bolts sulphured into the concrete, two bolts being put in the front portion of the streak-sill where there was formerly one. The accompanying sketch shows the changes suggested to remedy the weakness mentioned. The concrete-work has developed no signs of cracking or scaling, and will undoubtedly last many years.

The crushing capacity of the new 20 stamps has amounted to 1.3 tons per stamp-day more than that of the original 20 on wooden blocks, all other conditions remaining the same, over a period of nine months. The breakage of battery parts has been slightly less than in the original mill, and had been so small as to be a negligible quantity. The estimated cost of installing these batteries is

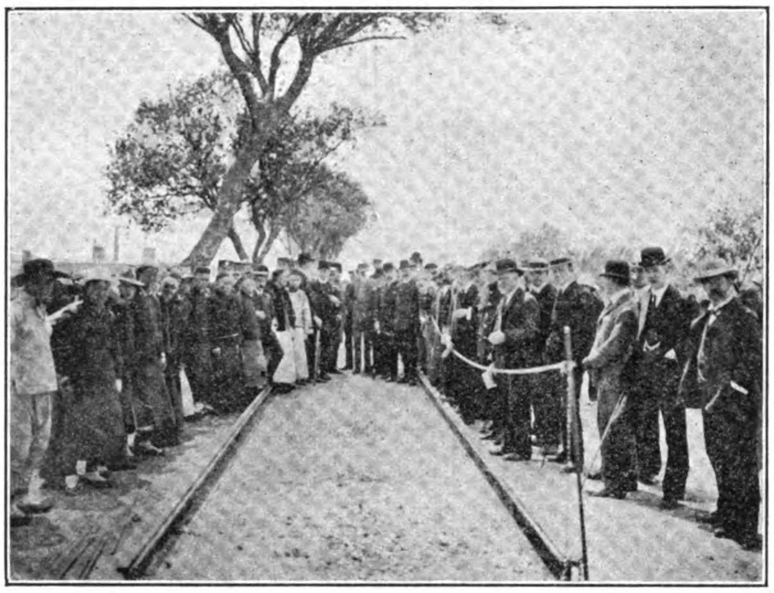


TROLLEY WIRE INSTALLATION—STEEL POLES—SHANGHAI TRAMWAY SYSTEM

about the same as that of a battery with wooden mortar-blocks and the usual type of foundations, amounting to $1,500 per stamp for the completed mill.—*Mining and Scientific Press.*



THE BUND, SHANGHAI, OPPOSITE THE SHANGHAI CLUB



CEREMONIES AT INAUGURATION OF TRAMWAY CONSTRUCTION

BEET SUGAR PRODUCTION

Considerably more than one-half of the world's sugar is now produced from beets. The percentage which beets supplied of the world's sugar product was in 1840 but 4.3 per cent; in 1850, 14.3 per cent; in 1860, 20.4 percent; in 1870, 34 4 per cent; in 1880, 43.1 per cent, and in 1890, 63.7 per cent, while 1900 showed for beets the highest proportion in the world's production of sugar—67.7 per cent. Of the United States production, aggregating approximately 1,300,000,000 pounds, a little over one-half was produced from beets, the year 1906 having been the first in the history of the country in which the domestic production of beet sugar exceeded that produced from cane, the figures of 1906, as supplied by the Bureau of Statistics, being: Beet sugar, 673,000,000, and cane sugar 600,000,000.

COMMUNICATED

EDITOR THE FAR EASTERN REVIEW

Dear Sir:

I have read with a good deal of interest the articles on "Sabang Bay" in the March number of your Review.

There are several inaccuracies in it. That it is a fine harbor goes without saying, the wharves are very fine also; but they do not find it easy to keep a good supply of coolies, there being little or no attraction or amusements for them; otherwise I don't think they would have gone to the expense of erecting those transporters. At times there is a fair amount of delay; there was a case in point but a month ago, a mail boat of the Nederland Steamship Co., a Paket-vaart boat, and one of the Chinese owned steamers were there together. The mail boat was bunkering; the Chinese boat which arrived at 1.50 p. m. required 50 tons bunkers. I cannot say if the Paketvaart required coal also. Anyhow the Chinese boat had to wait till 6.30 when the mail had finished, there not being enough coolies to go round. One can hardly call that despatch. Their transhipment cargo is but a case of robbing Peter to pay Paul, as before Sabang existed all the tobacco used to go to Batavia—same with import cargo—it used to be transhipped at Batavia—so that Batavia is the loser, not Singapore or Penang, as they get the tobacco they always did. And as regard the pepper trade of Acheen—well, that is practically a dead letter, what there is of it still goes to Penang, but it is dying. The Paketvaart have had to take their local boat off, the Chinese are going to take one off, the branch of the Netherlands Bank at Lho Samoi has to close for want of business; that does not look healthy. That Sabang will go ahead I admit, but slowly, and only as a coaling station, but it will be interesting to see the returns for 1907 when they have not the Russo Jap war to help them along.

Yours Truly

ONE WHO KNOWS

Pinang, April 3, 1907.

PUKET TIN MINES

The correspondent of the Singapore *Free Press* writing from Western Siam devotes some space to the development of the island of Puket lying in the vicinity of the west coast of Western Siam. This island is indicated on the map under the name of Junk Ceylon and is about the size of the city of Singapore. The correspondent writes:

"Puket is rich in tin, and there are numerous mines worked by Hokien Chinese. The population consists mainly of Hokien coolies, Siamese and a few Malays *(orang laut)*. The town of Puket, if a collection of insanitary attap hovels can be so described, lies in an amphitheatre surrounded by jungle covered hills. A trigonometrical survey is at present being actively carried on with a view to laying out roads to connect Tongkah with Burmah at Renong. A few bungalows for the Europeans of the mines department are being completed at the foot of the hills some distance from the "town."

ONLY A MINING CAMP

"But for the tin found in the island, Tongkah would be only a small fishing village and would never be heard of, or anything ever known about it. As it is, very few Europeans in Singapore or Penang know where Tongkah is.

"It is understood that a concession has been granted to an Australian or New Zealand syndicate to dredge for tin in the harbor, provided that they make a dock twenty-five feet deep and keep a good depth of water in the harbor for twenty-five years. It is also proposed to improve the mining conditions, and there is a suggestion of using the sea water to wash tin ore, owing to the scarcity of fresh water in Puket. It is further intended to put up a plant to utilize the sea water for flushing the drains and assisting in removal of sewage. The climatic conditions are similar to those of Burmah—six months drought and six months almost incessant rain. At the time of writing the wet season is just setting in. Puket is only a mining camp, and the 'scenery' consists mainly of mines and graves—graves with no stones to mark the spots where the bones of unfortunate Chinese miners lie, but only mounds of earth. Graves everywhere! Near the beach, among the abandoned mines and in the hills, graves."

The absence of a good water supply is responsible for the continued menace of plague, cholera, and typhoid. But this will soon be changed if Dr. S. A. McClintock, recently appointed as state surgeon and health officer, has his way. The correspondent says:

"One of the first steps he took on his arrival at Tongkah was to get an order passed to compel the notification of all deaths. A new modern hospital is to be built, and death certificates are to be granted in all cases. Every case of fever is to be reported by a Sanitary Inspector. Drains are to be constructed and houses are to be cleared away from certain insanitary sites. At present the water supply is very unsatisfactory. There are only a few shallow wells, and the stagnant water from abandoned and flooded mines is used for drinking purposes. Dr. McClintock intends to endeavor to find water in the range of hills by blasting operations. A plague isolation hospital is to be constructed by the Chinese towkays who understand the great loss to labor through the ravages of the plague. The government is to build a cholera isolation hospital. The first step in the proposed improvement of Tongkah is the adoption of measures for the health of the town, and this the new state surgeon is determined to succeed in. The apathy hitherto shown by the Siamese officials regarding the health of Puket has, it is to be hoped, now ceased, and the advice of the state surgeon should be followed in all these matters. Medical branches are to be organized at Renong, Trang and other places along the coast. The stock of medicines wants renewing. At present the state surgeon has not a single qualified assistant. His colleagues in Singapore and Penang would smile if they could see him examining eighty or ninety patients in an attap hut, prescribing for them, dispensing and dressing unaided. This is the Siamese idea of 'to administer and organise.'

IMPROVEMENTS PROMISED

"A telegraph and post office have been established, and it is to be hoped will soon be improved. The treasury and custom house require to be reorganized. The only Europeans in Puket besides the Government officials are the Straits Trading Company's representatives. Mr. Hartnell, the head of the police, is expected back in August from furlough, and he will once more endeavor to keep the police in order.

"Notwithstanding the freight war between the Straits Steamship Company and the Koe Guan Company of Penang, the passenger rates between Tongkah and Penang are exorbitant during the plague season. Although only one night at sea, a European first class (?) passenger has to pay $12 and $10 for his 'boy' on the 'kapal puteh,' as the Singapore Company's old tub is termed. It costs exactly the same to travel with a servant on a modern boat like the 'Perak' from Penang to Singapore via Port Swettenham.

"A railway from Bangkok is to be pushed on to Trang, on the mainland, about six or eight miles from Puket. Roads are to be constructed, and the high commissioner, Mr. Kaw Sim Bee, a Chinaman, is expecting a motor car shortly. The state surgeon will be supplied with a car when roads have been constructed."

MERCHANT MARINE OF JAPAN

The following report, covering the new steamship combine, the composition of the merchant marine, and the subsidies paid by the Government to aid shipbuilding and the merchant marine of Japan, is furnished by Consul General Henry B. Miller, of Yokohama:

The annual appropriation for promoting shipping and aiding lines of the merchant marine was for the fiscal year ended March 31, 1907, and for previous years $3,526,559, and for shipbuilding $399,250. This has been increased for the current fiscal year and several succeeding years by $784,136 per annum in subsidies for various lines. More than half of this increase goes to sustain old and establish new lines to China.

The great success that Japan will achieve in the expansion of her merchant marine will be in securing a strong position in the coasting and river transportation of China. She is building up all of these branch lines with such success that they will all become feeders to her main lines to Europe, Australia, America, Philippines, etc. The great interior of China can be reached by river transportation, and Japan's merchant marine is being extended, expanded, and constructed not only to command the large and small seaports, but to penetrate as far as possible into the heart of China by river service.

THE NEW STEAMSHIP COMBINE

The scheme to incorporate the Yangtze services of the four Japanese steamship companies—Nippon Yusen Kwaisha (Japan Mail Steamship Company), the Osaka Shosen Kwaisha (Osaka Mercantile Steamship Company), the Daito Steamship Company, and the Hunan Steamship Company—has matured. The capital of the new company will be $6,000,000 gold, made up as follows: Capital of the Daito Company, with 15 steam tugs and 15 lighters, $50,000; paid-up capital of the Hunan Steamship Company, with 3 steamships of a total tonnage of 3,370 tons, $375,000; Osaka Mercantile Steamship Company, with 6 steamers on the Yangtze and other property, $2,000,000; Japan Mail Steamship Company, with 2 steamers and other property, $1,500,000. The balance, $2,075,000, is offered to the public, which shows the greatest interest in the combine and will quickly subscribe for that amount.

When the shares are fully subscribed, 4 steamers of over 2,000 tons each will be built, and the services will be extended to Hongkong, Canton, Tairen (Dalny), and other north and south China ports. The name of the new company will be the Nisshin Kisen Kwaisha (Japan China Steamship Company).

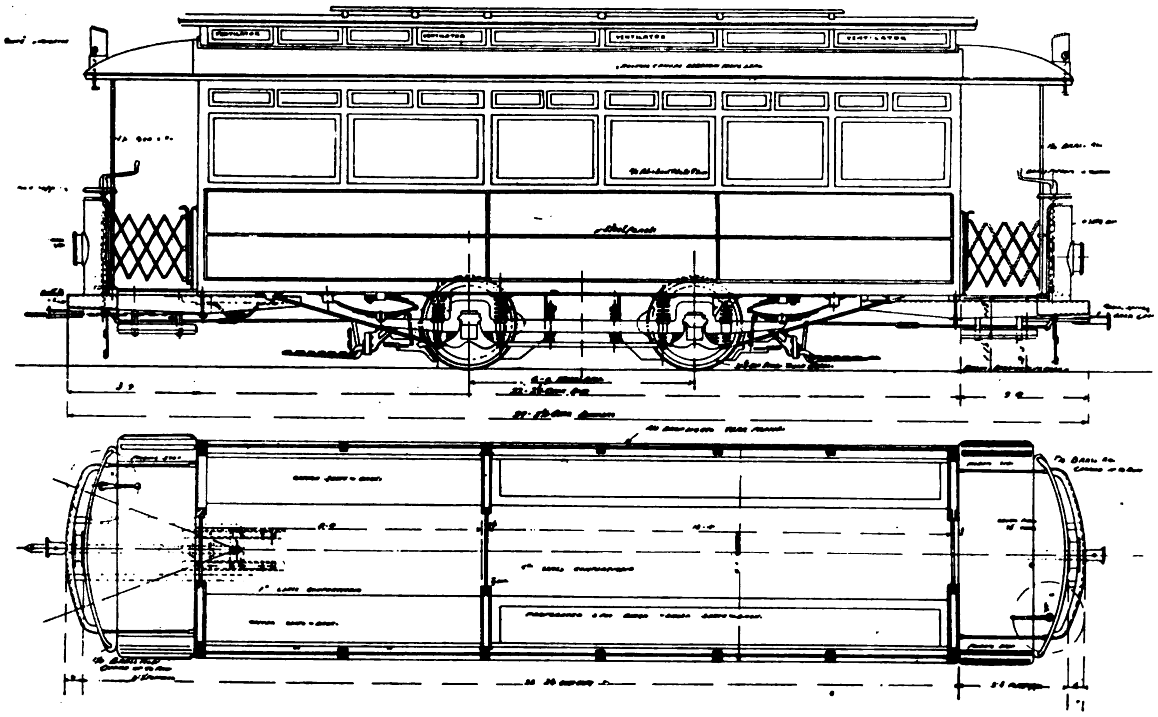
A Government subsidy of about $400,000, the estimate for which is included in the budget for the coming fiscal year, now before the Diet, will be granted for five years. Subsidies are now granted to the four companies on the Yangtze service to the total amount of $250,000.

PLANS FOR SECURING FREIGHTS

It is pointed out that the business of the new company will be exploited on a different plan from that adopted by the existing companies, for whereas they, generally speaking, principally engage in the passenger service, it is intended by the new combine to make the cargo-carrying trade its chief business. At present, in connection with the local as well as the foreign services of the principal Japanese steamship companies, calls are only made at the most important ports, and it is believed by the promoters of the new steamship concern that a large volume of business can be created by their steamers calling at small ports now almost entirely neglected by the existing companies.

That one of the aims of the new undertaking is to compete severely with some of the foreign steamers trading in Far Eastern waters there can be little doubt, and the competition between the new company and the foreign shipping companies is sure to be even keener than that between it and the other Japanese concerns. The promoters of the new combine point out that rice from Siam and Rangoon, sugar from Java, phosphatic rock from the Pacific islands, etc., are all at present brought to Japan by foreign steamers, and it is such trade that the company will seek to develop and promote. They anticipate success in this direction by reason of more economical working than can be employed on foreign vessels, and also on account of the anticipated Government subsidy, by which they hope to make good any losses that may be incurred.

In Japan this new company will come next in order of tonnage to the Nippon Yusen Kwaisha (Japan Mail Steamship Company), the largest steamship company, and will be a power in shipping circles both at home and abroad.



SINGLE DECK SEMI-CONVERTIBLE CARS FOR SHANGHAI ELECTRIC TRMWAYS

SHIPS IN SERVICE

From investigations made by the department of communications the following figures have been obtained, showing the state of the mercantile marine of Japan at the close of the year 1906:

Tonnage classification.	Steamships.			Sailing vessels, foreign model.		
	Number.	Tonnage.		Number.	Tonnage.	
		Gross.	Registered		Gross.	Registered.
20 to 100	638	31,559	17,138	2,789	173,421	162,991
100 to 300.....	262	44,613	26,250	1,249	168,114	157,967
300 to 500.....	91	35,434	21,700	4	1,613	1,516
500 to 1,000 ..	134	96,147	59,674	1	825	776
1,000 to 2,000.	131	198,527	112,524	.....	....	....
2,000 to 3,000 .	108	263,748	170,989	1	2,287	1,413
3,000 to 4,000..	42	142,490	92,160	.....	....	....
4,000 to 5,000.	13	57,480	38,415	.....	......	....
5,000 to 6,000..	6	31,972	19,462	.....	....	....
6,000 to 7,000.	20	125,021	76,303	....	......	....
7,000 and over	1	7,643	4,627	....	......	....
Total	1446	1,034,634	639,242	4,044	346,260	324,668

In addition to the sailing vessels of foreign model given in the foregoing statement there

are 1,162 vessels of Japanese model, of a total carrying capacity of about 447,521 tons.

SHIP BUILDING ACTIVITY

One salient fact brought out by the foregoing table is the increase in the number of large steamers. Japan has now no less than twenty steamers of from 6,000 to 7,000 tons. The dockyards at Nagasaki, Kobe, and Uraga are very busy; they have 60,000 tons of vessels on the stocks, and 50,000 tons more are in prospect. That there should be such activity in building is remarkable, for the additions made to the marine during the war amounted to no less than 350,000 tons, bringing the total for steamers to a figure above 1,000,000 tons, and the result has been keen competition, so that many complaints are heard about cheap freights. The Nippon Yusen Kwaisha (Japan Steamship Company), formed by a union of shipowners other than the existing three large companies, with its capital of $10,000,000, is about to add several large vessels to its fleet, and altogether it may be expected that freights will be cheaper before they are dearer. As examples of the effect already produced by competition, it may be mentioned that whereas a ton of coal used to cost $1.25 for transportation from Moji to Yokohama, the charge fell at one time to 25 cents, and though it recently rose to 35 cents, it is only one-half the rate ruling before the late war. An agreement as to the rate among all the shipowners seems to be the only remedy to improve the situation, and much talk of such an agreement is now heard.

The Nippon Yusen Kwaisha is contemplating establishing a regular line between Japan and New York, via Suez, after the completion of the six new steamers, of 8,000 tons each, now building at the Nagasaki and Kobe shipbuilding yards.

SUBSIDIES FOR CURRENT YEAR

In the budget for the fiscal year ending March 31, 1908, the regular annual appropriation for aids and subventions for various forms and lines of the merchant marine, previously arranged and fixed, is as follows:

Line to Australia	$ 236,546
Ports of call (extension of the above)	25,000
Line to Europe	1,336,948
Seattle Line	327,015
San Francisco Line	506,940
Far-Eastern-Sea Line	265,000
Okinawa-Saki Line	4,500
Okinawa Line	2,700
Encouragement to navigation	769,002
Encouragement to shipbuilding	399,250
Deep-sea fishing fleet	53,408
Total	$3,926,309

In addition to the foregoing the following aids and subventions have been recommended by the Cabinet and approved by the Diet now in session: Education of seamen, $2,500; relief of disasters at sea, $10,000; subsidy for steamship service in Chinese waters, $400,000; steamship service to Dalny, $70,000. These four amounts will be granted each year for five consecutive years beginning with the fiscal year ending March 31, 1908.

A subsidy of $99,756 a year will also be granted for four consecutive years to the steamship line to Hokkaido. And the following six subsidies will be granted for three consecutive years: Steamship line to Izu Islands, $3,780; service in Japanese waters, $175,500; service to Bonin Islands, $7,740; services in Kagoshima Ken to islands, $11,400; services among Bonin Islands, $760; service to Oki Islands, $2,700. The new aids and subsidies to the merchant marine for the fiscal year 1908 thus amount to $784,136. This, added to those previously fixed, makes the total subsidies $4,709,945.

AUSTRALIA INTERESTED IN THE HEMP INDUSTRY

Now that so much attention is given to the possibilities of the British colonies as sources of supply for cotton, ramie, and other fibrous plants, it is interesting to note the success that has attended the enterprise of New Zealand in the cultivation of hemp.

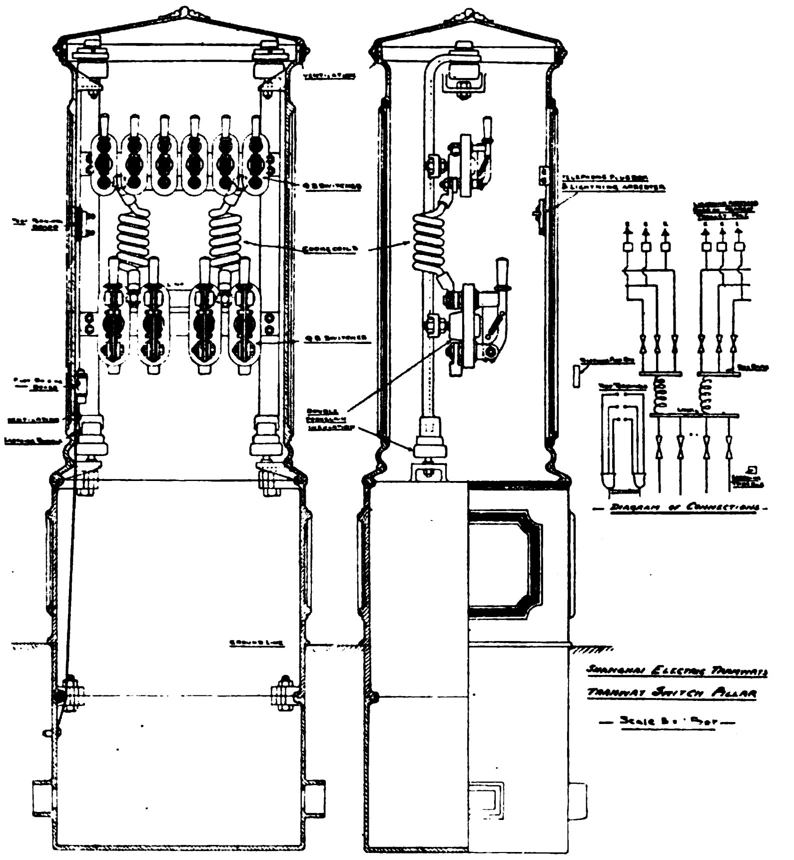
The recent development of New Zealand's great hemp industry has become the subject of much interest in Australia. The question has naturally arisen that if New Zealand has done so much in the cultivation and export of such a valuable product, why should not Australia do something in the same direction? Happily for New Zealand, the valuable plant grows anywhere and everywhere, and, unlike the thistle, burr, stinkwort, cactus, and other prolific growths in Australia, does not become a costly nuisance to the producer, but rather helps him. The New Zealand hemp industry might have achieved even greater success had the offers made by the government been accepted by anyone competent to deal with the decortication process—one upon which the ultimate success of hemp production depends.

John Holmes of Wellington, New Zealand, has done this important industry signal service. He acted as trade commissioner in New Zealand in 1897-98. Mr. Holmes' first selection as trade commissioner was made on the petition of all the hemp mills of the colony, supported by the chamber of commerce, agricultural societies, and industrial associations.

Mr. Holmes devoted 18 months to the investigation of the fiber markets of the world, traversing England, Ireland, Scotland, America, Canada, British Columbia, and South Africa, during which he proclaimed the potentialities of New Zealand as a producing country, which he described as the "future Britain of the South." He also made known the bonus of £2,000 then offered by the government of New Zealand for the best method of dressing phormium tenax, commonly known as New Zealand flax, but recognized by the trade as New Zealand hemp.

Notwithstanding the depression which overtook the New Zealand hemp trade in 1896, which had then fallen to an annual export of 1,800 tons, and to the low price of only £10 per ton, Mr. Holmes solidly maintained that with the proper investigation of the fiber world with a view to ascertaining the requirements of oversea buyers and the adoption of a compulsory trading system, a better future would be secured, and a more profitable outlet obtained for the hemp which grows in such luxurious abundance throughout the colony over an area of 104,000 square miles.

The prophecies which Mr. Holmes made have been more than fulfilled. Trade in New Zealand hemp has continued to expand from an export of 1,800 tons in 1896 to 30,000 tons in 1906, while prices have risen in a more pronounced degree. The value of the product has steadily advanced from £10 in 1896 to £30 per ton. Mr. Holmes maintained that with proper cultivation of farm lands, also the waste lands of New Zealand, that country could profitably export 100,000 tons of fiber annually, which, at current market rates, would represent £3,000,000. This large supply would, moreover, secure a continuity of market—a desideratum of the greatest importance.



SWITCH PILLAR SHANGHAI ELECTRIC TRAMWAYS

MANILA'S NEW WATER AND SEWER SYSTEM

The Philippine Commission has appropriated the sum of $2,850,000 to be expended in completing the new gravity water supply system for the capital of the archipelago and to carry on the work of sewer construction, now well under way. Up to June 30, 1907, $1,357,909.00 were expended, and it is estimated that the work accomplished represents about half necessary to complete installation.

Messrs. Matson, Lord & Belser Co. secured the contract for the construction of the dam and reservoir of the water system; Messrs. Peabody & Co. furnished the steel plates and rivets while the Atlantic, Gulf and Pacific Co. is doing the lion share of the work on the construction of the water supply and all the work on the installation of the sewer system. It is believed that the new water system will be completed by July, 1908, the date of the expiration of the time limit, and the sewer system may be completed before the time called for in the contract which is July, 1909.

GOLD AND TIN MINES OF THE FEDERATED MALAY STATES

An interesting paper on mining in the Federated Malay States by J. B. Scrivenor appears in the *Mining Journal*, which covers the progress in development to the present time and is of special interest in view of the fact that the writer is familiar with every feature of the mining industry in the different zones of activity. In this paper especial reference is made to Pahang. The article follows:

GOLD MINING

The chief object of my work in Pahang has been an examination of the country in connexion with the gold mining industry. Early in 1904 the Resident-General called for a report, to be provided as soon as possible, on the gold mines of Pahang. This led to the publication of a Preliminary Report, dated May 14, on the Gold Mines of the Federated Malay States, in which I said that I could not pretend to have formed, in three months, an estimate of the prospects of gold mining in Pahang that could be considered final. Since then I have seen more of the gold mines and have visited numbers of localities where gold is known to occur. Moreover, I have prospected, in co-operation with the Assistant Warden of Mines, Pahang, over a considerable portion of the "Ulu" of the Dong Valley, where Malays are mining alluvial gold. The result, I regret to say, is not encouraging.

I think I am right in saying that there has been a widespread impression that Pahang contains vast stores of mineral wealth. As far as gold is concerned this has been brought about by two factors—good results in the early days of mining, and extensive native operations, past and present. Both, however, are misleading. It has not been generally realised that the early work was conducted mainly on the shallow portions of lodes, where they were affected by surface enrichment, and the fact that the Malays of to-day can work alluvial deposits, at a profit to themselves, which no white man could hope to exploit advantageously without living like a Malay, has not been set against the number and extent of native workings. The Malay buys a license for $5, he wants no machinery, a "chupak" of rice per diem and a bit of dried fish is all he needs for food, he drinks nothing but water, while a house of moderate size costs him perhaps $60. The women and children, with wooden pans, constitute the dressing plant. In one mine I visited the owner was hiring women to wash up the concentrates in the ditch. Their wages were 10 to 16 cents a day. I suppose it is the rule that Malay gold miners in Pahang have padi-fields and orchards that suffice to support them apart from gold mining.

With regard to the old workings, I am informed that there are historical grounds for believing that large quantities of gold were exported from Pahang before ever a white man set foot in the country; and it is justifiable to suppose that alluvial deposits richer than those now exploited by Malays have been worked out. But an examination of existing native mining conditions makes it evident, that, even had the deposits been as poor as those that were left for later generations, there might have survived just as many signs of ancient workings.

Another point concerning Pahang is that a great deal more prospecting has been carried out than is supposed by those who know only the western States, and the general verdict is disappointing. It must be granted that prospecting is difficult; and it is quite possible, even probable, that there are more lodes worth exploiting. But until the jungle is cut down to a greater extent, and until there are better communications than at present, I do not think it can be expected that capital will be expended in a search for them, seeing the results of gold mining so far; but, on the other hand, it would be impossible to advise the Government to make roads with gold mining solely in view. My hope is that when the agricultural resources of the country are developed, and the jungle cleared, more gold will be discovered in quantities worth working.

In the Preliminary Report I spoke of the Pahang gold mines as occurring on parallel lines trending N. N. W.—S. S. E., the principal line being occupied by the Raub Australian Gold Mines, Chapping and Silensing. After seeing more of the country, I do not think that this idea can be maintained. The most that can be said is that in the Peninsula there is a belt of country, extending from Mount Ophir into Kelantan, along which there appears to be more gold than on either side of it; but even in this belt the metal is so distributed that deposits payable for white men to work have proved scarce.

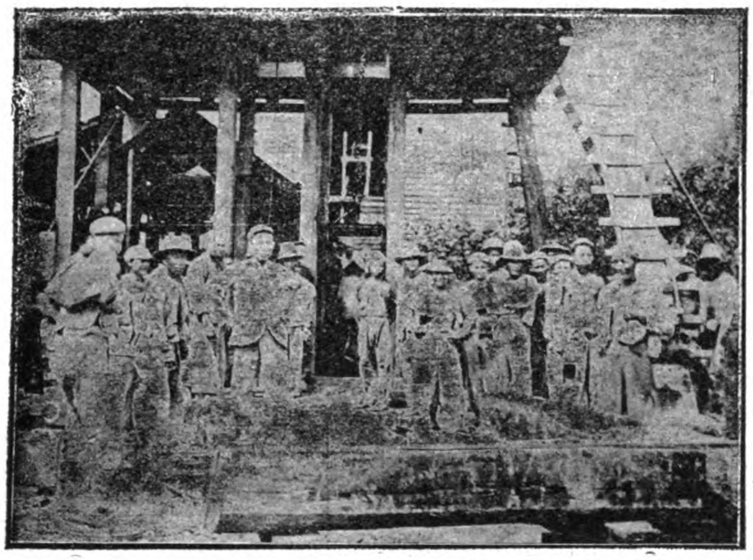
Gold is not confined to any one rock in the Federated Malay States; but it is interesting to note that the greater part of the underground operations have been conducted in rocks of the Raub Series and igneous rocks associated with them. Whether these igneous rocks have supplied the gold now found in veins, is a question that I think need not be discussed further here. I introduced the subject in the Preliminary Report,* and will repeat one point only—namely, that the Raub Australian Gold Mines constitute what is, apparently, a formidable objection to accepting them as the source, since, with the exception of an outcrop of quartz-porphyry near Bukit Malacca, no igneous rocks have been discovered. That there may be other igneous rocks near by, hidden in the jungle, cannot be denied.

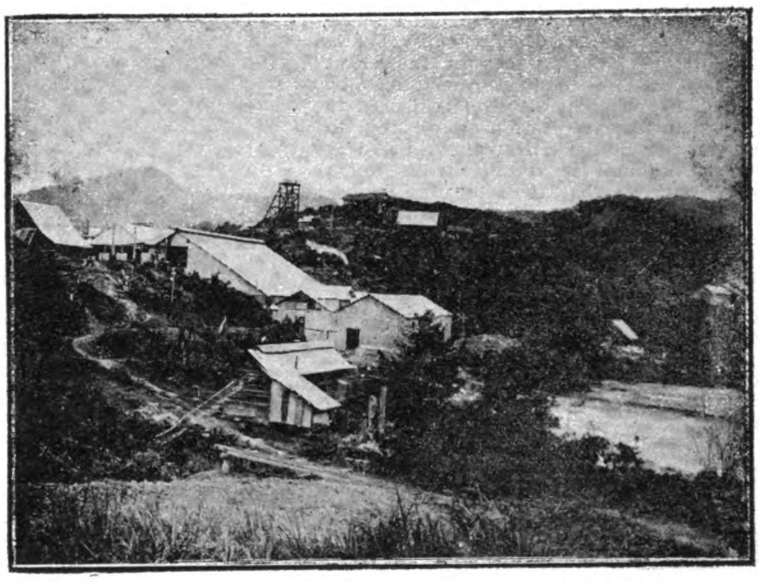
Two interesting occurrences may be noted. In a report dated March 7, 1901, Mr. E. T. McCarthy says: "From inquiries I found that conglomerate float stones have been picked up, rich in gold; but in the vicinity of these stones a conglomerate bed in situ showed no gold." Mr. McCarthy recommended prospecting the conglomerate and sandstone. This has been done, independently, where the Telom cuts through the Bentong-Telom Range. Mr Dumaresq, who was the prospector, informs me that he found small quartz veins carrying gold, but none of sufficient extent to work.

At Gombak, in Selangor, I found pebbles of chert with radiolaria and containing abundant pyrite in microscopic grains. A sample when assayed gave 1¼ dwts. of gold per ton. Carbon, present in the chert, may account for the abundance of pyrite. In Pahang the carbonaceous shales of the Chert Series are rich in finely disseminated pyrite. I had hoped that the Gombak occurrence would lead to the discovery of some payable deposit akin to the remarkable gold ore treated by cyanidation in Sarawak. It must be confessed the inducement to prospectors is not great.

ALLUVIAL GOLD

It would be tedious to enumerate all the localities where alluvial gold has been or is being worked in Pahang. For the most part it occurs in very small quantities, giving no more than a color in the pan. There are, however, good patches here and there, but of such limited extent that they are rarely worth exploiting for white miners. At Tui, I am told, alluvial gold occurred in payable quantities over limestone; and I have heard that near Kuala Sat, on the Tembeling, some land was found carrying fair quantities of gold. In the latter case the transport would probably kill any but a rich mining concern. In the "Ulu" of the Chika extensive prospecting has been carried out. The result showed a few small patches of fair material in a large area





CHINESE MINERS CHANGING SHIFT AT THE RAUB SEMPAN MINES—GENERAL VIEW OF PROPERTY SHOWING NEW MAIN SHAFT ON HILLTOP AND THE 40-STAMP BATTERY LABORATORY OFFICE AND TAILINGS PIT

* A valuable paper in this connexion is "The Role of the Igneous Rocks in the Formation of Veins," by Mr. J. F. Kemp, in "The Genesis of Ore Deposits," published by the American Institute of Mining Engineers, New York, 1902.

of poor ground. The work in the Dong Valley gave very poor results. At Bentong gold has been found with the alluvial tin. This is the case also at Tapah, in Perak, where gold is still saved by Chinese miners.

LODE GOLD

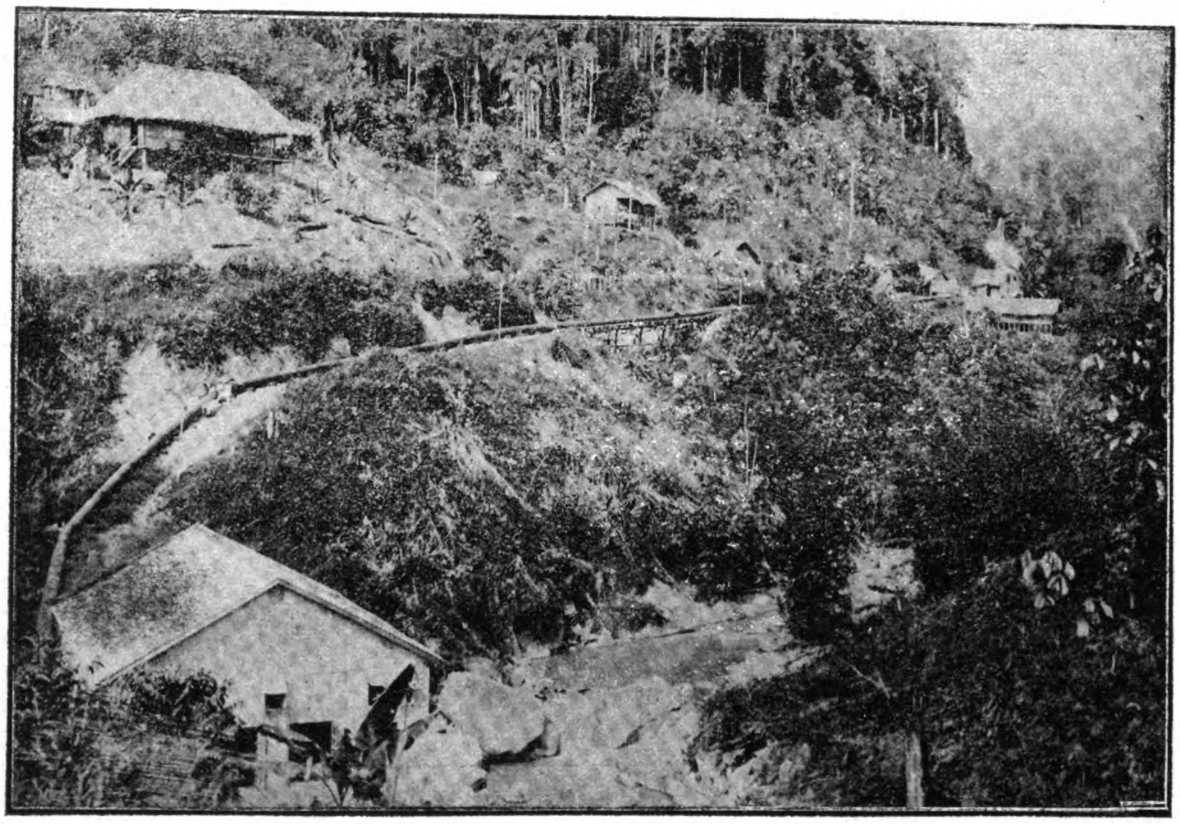
There are now only two gold mines working in the Federated Malay States, apart from native holdings, Raub and Batu Bersawah. Silensing, however, is commencing operations again. I group the various workings at Raub together as one, as they are close together and under the same management, although there are, in fact, three distinct mines—Bukit Koman, Bukit Malacca, and Stope. Batu Bersawah is a small mine in Negri Sembilan.

The Kechau Gold Fields Mines have closed down. The North Kechau lode looked, at one time, very promising. The hanging wall is hard black limestone, the footwall an intensely sheared light grey and fawn-colored rock which I now believe to be a sheared ash of the Pahang Volcanic Series. Between these clearly marked walls were masses of ore. An idea of their contents may be gathered from the fact that 1,380 tons yielded 581,503 ozs. free-milling gold, equivalent to 8.42 dwts. per ton. It proved, however, that these bodies of ore were too, few, or too far apart, for successful mining.

The Punjom Concession has ceased to exist, and after further prospecting a proposal to take up part of the original area has fallen through. It has been impossible for me to discover of what nature exactly were the operations that took place underground, for the only work I have seen in progress has been on small stringers at the surface. It is noteworthy, however, that the mullock from the Jalais shaft is largely conglomerate with a greenish tinge owing to the admixture of a rock similar to some of those of the Pahang Volcanic Series. Gold has been won by natives from conglomerate at Silensing.

Nothing more has been done at Tui, where Mr. Swan found gold in veins of quartz and veins of calcite in light grey limestone. It was here that the limestone was drilled for 953 ft. vertically. The stone was the same the whole way down. The dip cannot be observed in the present state of the mine. Working underground in the limestone was attempted, and considerable difficulties experienced on account of water and liquid mud.

In Negri Sembilan, Pasoh and Chindras are abandoned. Pasoh was interesting as being in granite country, and affording a gold-bearing granophyre. There is reason to suppose that the metal occurred originally in nests of pyrite, since Mr. J. Burns, who is acquainted with what took place there, has informed me that prospects as high as 5-6 dwts. were only obtained where there was a "vugh" or cavity.



ELECTRIC POWER GENERATING STATION AT THE RAUB GOLD MINES ON SEMPAN RIVER, PAHANG, SHOWING PIPE LINE AND PLANT WITH HOME OF ENGINEER—POWER TRANSMITTED NINE MILES TO MINES AND UTILIZED FOR ALL OPERATIONS THERE

THE RAUB AUSTRALIAN GOLD MINES

The mines worked by the Raub Australian Gold Mining Company are justly noted as a well-equipped property where low grade stone is combated by economy and efficiency. The power is chiefly supplied by electricity, generated on the Sempan River and conveyed about 6 miles over the conglomerate and sandstone hills of the Bentong-Telom Range to the mine.

But for one point, the Raub mines are of no great geological interest. The country is composed of almost vertical beds of shale and calcareous shale of the Raub Series, with occasional thin calcareous crush-conglomerates. There is no well-defined lode between marked walls, but a number of lenticular bedded veins and stringers of quartz in country. The best results are obtained from ore where there is a large admixture of country. The general trend of these veins is N.N.W.—S.S.E. Pyrite is commonly disseminated through the country, but I have not seen, or heard of, any large masses of this mineral. Calcite frequently occurs with the quartz.

The following figures, supplied by Mr. W. H. Martin, will show the grade of the stone: Year ending February 1905—Tons crushed, 60,905; gold won, 7,879.227 ozs. Year ending February 1906—Tons crushed, 69,139; gold won, 9,995.192 ozs. In 1904 Mr. C. G. Warnford Lock gave me the following figures: At Bukit Koman an average of 2½-3 dwts. per ton is a fair statement where the quartz is well developed and homogeneous. Where the ore becomes a mass of minute seams and lenticles of quartz in country 12 dwts.—1 oz. may be reached.

The one interesting point mentioned above is the occurrence of scheelite in the lode at Stope. The association of gold with scheelite is not common. It has been recorded in New Zealand, New South Wales, Piedmont, and the United States. Mr. Martin informs me that at Raub, unfortunately, the amount of scheelite is only sufficient to hinder amalgamation. It is to be regretted, however, that previous to my demonstrating the nature of this mineral it had been thrown away as useless, although unknown.

In the Preliminary Report I mentioned that an experimental shaft was being sunk at Bukit Koman to 1,500 ft. in order to prove the ore bodies in depth. Since then sinking has been suspended. With regard to the question of what would be found at 1,500 ft., I find that I have been credited with the opinion that with increasing depth there will be a decrease in value. I do not remember entertaining such an opinion, and would quote a remark of mine in the Preliminary Report, where, presupposing the existence of quartz, I wrote: "As for the problem of the richness of these quartz bodies at 1,500 ft. or more, whether in shale, sandstone, or granite, there is absolutely no means of arriving at an opinion worthy of consideration until assays of the actual stone can be made."

In the report by Mr. McCarthy quoted above "a very powerful slide or cross-course" is mentioned as cutting the ore formation at No. 4 air shaft, 613 ft. distant from the main shaft (presumably in B. Koman). I myself have seen no clearly marked faults throwing the veins; but I have seen, at B. Malacca, sudden twists in the course, owing, I believe, to the ore bodies following sharp folds in the country. In one case 1 oz. stone in some quantity was found tucked away in one of these folds. I may add that I have seen no evidence of the gold lodes being dislocated elsewhere.

BATU BERSAWAH

Since I first visited Batu Bersawah in 1904 work has been suspended for many months pending the completion of a new shaft, sunk in diabase. Returns from this mine have been good, often reaching 13-14 dwts. per ton. The amount of stone crushed per mensem, however, has not exceeded 500 tons. The lode is near the junction of Raub Series shales

with the diabase. Its course is approximately N.N.W.—S.S.E. My latest information concerning this mine is that the results in the new level worked from the new shaft are disappointing. Further sinking may, of course, reveal more gold.

TIN MINING, PAHANG

Tin mining in Pahang, although affording a small output compared with that of the western States, is by no means on the same footing as the gold-mining industry. It suffers owing to difficulties of access, which will disappear in time. That want of communications has handicapped the Machi tin field, a tin field that can only be entered by jungle tracks, is evident. Nevertheless, with one exception, I believe that investors have not complained about returns from Pahang tin mines.

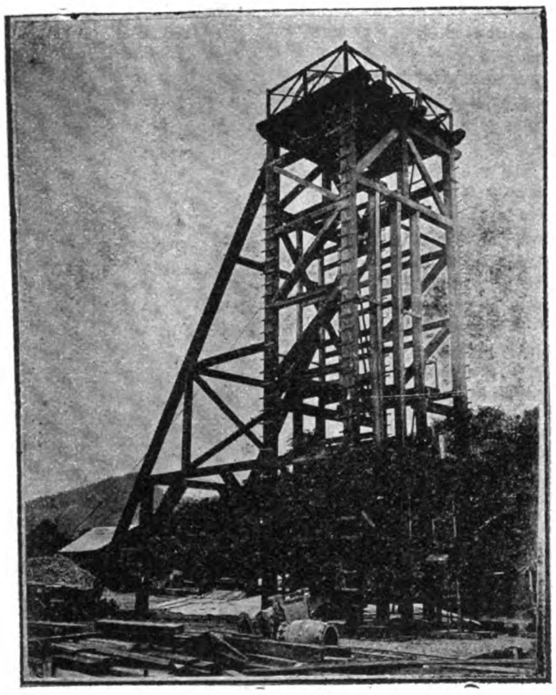
trachytes and andesites, that the Pahang Volcanic Series may afford payable deposits. It may be so, but I have no evidence tending in that direction. On the contrary, and in spite of the apparent absence of granite outcrops at Machi, there is overwhelming evidence that the tin ore in the Federated Malay States came into being with granite at a much later date than the Pahang Volcanic Series.

Another general question that has been raised is why the country on one side of the Main Range should be favored with a larger supply of tin ore than that on the other. This involves an idea that, I think I may now say, is a fallacy—namely, that the Main Range is the reservoir from which the greater part of the alluvial tin ore has been derived. Without going into the difficulties raised by an acquaintance with the rivers in the mountains, it is

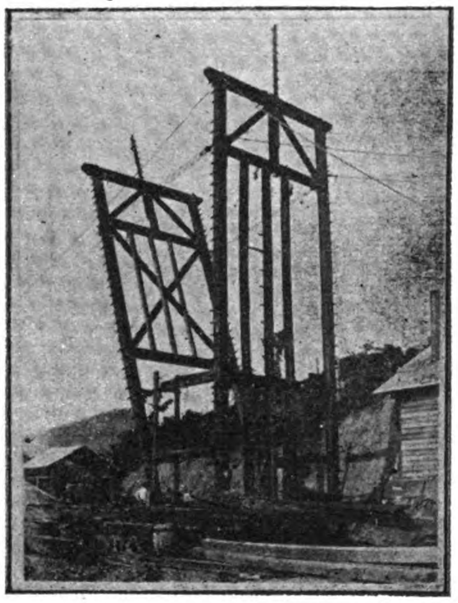
has been exported from Sungei Lembing. It occurs with the tin ore in the lodes, and Mr. W. H. Derrick informed me in 1904 that it decreases in quantity in depth. The country is hard dark clay slate with some andalusite schist and tourmaline schist. The tin ore occurs chiefly as an impregnation in the walls of fissures.

BUNDI (KEMAMAN)

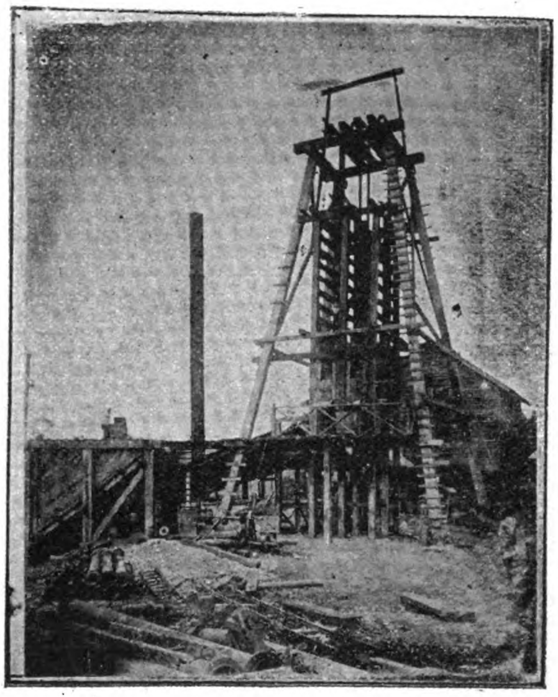
Separated from Sungei Lembing politically, but not far removed, is the Bundi Tin Mining Syndicate's property, which is only second to the Pahang Consolidated Mines for geological interest on the east coast. Originally this property was worked by the Sultan of Tringganu, but about fifty years ago he let it out on tribute to Tam Kye Chiang, who worked it open-cast to a depth of about 100 ft. from



HEADGEAR, RAUB MINES, COMPLETE



ERECTING SECOND PAIR OF LEGS AT NEW MAIN SHAFT



OLD MAIN SHAFT WITH ORE BINS ALONGSIDE RAILWAY

I do not claim to have done everything that there is to be done in connexion with tin mining in Pahang; it would be impossible in the time. There is, however, one general question that I may touch on—namely, the possibility of there being hidden tin fields comparable to the Kinta Valley in Perak, or Pudu in Selangor. The peculiarity of these alluvial flats that is, I think, the cause of their great wealth of tin ore, is the fact that the floor is mainly a very irregular surface of limestone where the ore, which there is no reason to suppose has been brought from a distance, has been considerably concentrated by natural means in basins and grooves. The two factors required in Pahang, then, for a repetition of these alluvial flats are an uneven limestone surface and tin ore, which we may safely say postulates granite or its modifications. The first factor is supplied in at least two cases, but on a small scale—namely, in the vicinity of Bukit Goa Sar and Bukit Goa Bama. I expect, too, that such surfaces occur under the alluvium of the Pahang River between Kuala Tembeling and Kuala Semantan, and also in the valley of the Tanum. But I cannot point to any probability of tin ore being found in considerable quantities. We know that alluvial tin ore occurs in small quantities where its source is, perhaps, not very obvious. In Kuala Lipis, for instance, tin ore has been reported. But even were granite known to exist close to the limestone, which, as touching the instances given, is only so in the possible case of the Tanum valley, it is well established that there are vast masses of granite in Pahang, differing, it is true, in some respects from the granite of the Main Range, that have afforded no payable deposits of tin ore. It may be argued that because in Bolivia and Mexico tin ore is associated with

unnecessary to go so far as that for a source. We know that there are quantities of tin ore in granitic rocks, in schists, and in limestone, far from the central axis of the Peninsula, from which adjacent alluvial ore could be, and, I believe, was derived. In Pahang, as in Selangor, tin ore is being worked in the Main Range. On descending into Selangor, further masses of stanniferous granitic rocks are encountered. On descending into Pahang, a zone of low grade gold deposits is entered, separating the Bentong and Tras tin mines from those near the east coast. Why this should be so, we cannot possibly tell.

THE TIN LODES OF KUANTAN

Best known of all the tin mines on the east side of the Peninsula are those formerly under the management of the Pahang Corporation at Sungei Lembing, in Kuantan, and now being re-equipped by the Pahang Consolidated Company, Limited. I first visited these mines early in 1904, when an appeal had been made to the Government to assist in proving these lodes in depth. My last visit was in the latter half of 1906, when there was not so much to be seen as in 1904. Since development is being pushed on now, and I look forward to further opportunities of visiting the mines, I will reserve a general description until a later date. The workings will shortly pass into granite, and some anxiety is felt as to the behavior of the lodes. The points of resemblance between these lodes and those in the killas of Cornwall are so striking that the disappearance of the lodes on entering the granite would be surprising, seeing that in Cornwall similar lodes have been followed into the granite to great depths. It will soon be known whether this resemblance is deceptive. Copper

the present surface. The mine was filled up again with waste and ground the Towkay had found not worth working—largely averaging, I am informed by the manager, Mr. William Thomas, one kati per cubic yard material. Seventeen or eighteen years ago the Bundi Tin Mining Company (now the Syndicate) obtained a concession from the Sultan, including the old Chinese open-cast mine, which have been working ever since, extracting rich ore that had been left behind.*

Bundi lies at the base and to the east of a steep ridge culminating in Bukit Bundi. As I came down the River Chiroi I passed sandstone (probably weathered quartzite) at the southerly termination of this ridge, and near the settlement the base of the ridge consists of quartzite and laminated indurated shale.

The deposit, which has not been completely developed, may be described as a vast mass of clay, sandy ground, quartz, soft masses of sulphides, and hard masses of iron oxides, between walls of hard granite (non-porphyritic). The length of the deposit is 1,575 ft. The greatest known breadth is 120 ft. Judging from what is known of the walls, there is reason to suppose they form a trough. At Glen Reef only, the most northerly working, has the supposed trough been bottomed—at 80 ft. below adit. At "Anderson's" a shaft has been sunk 200 ft. in the granite on the west, and a crosscut at 150 ft. shows that the deposit has not been bottomed there. The operations from this shaft have revealed a remarkable bar of hard sulphides 40 ft. thick, with green monoclinic

* In a recently published work, "Tin Deposits of the World" ("The Mining Journal," publishers, 1905, pp. 60-61), Mr. Sydney Fawns has given an account of Bundi. I regret that my observations have not led me to the same conclusions.

pyroxene, that forms the actual junction with the soft ground. The pyroxene forms a mosaic of minute irregular grains scattered throughout the mass of sulphides.

At Glen Reef one gets a good idea of the deposit. The shaft has been sunk 90 ft. in hard granite, and a crosscut passes below the soft ore-bearing ground in the same country. Going south, on the drive at 90 ft. we pass from hard granite into soft granitic rock containing tin ore, sometimes in payable quantities. Passing on and up into the stopes, all in soft ground, we find soft bands of sulphides, iron oxides, yellowish clay, white clay with quartz, quartz, and a green chloritic rock. The ground has been mined for about 150 ft. towards the south. At 65 ft. below adit the distance from granite to granite is about 30 ft. at each end and 80 ft. in the center. No solid sulphide bars are found like that in "Anderson's," but, generally speaking, soft masses of sulphides are found near the hard granite.

In a prospecting shaft near the Old Mine shaft barren quartz, chloritic rock, grey and white clay, and quartz with sulphides were seen.

In the Old Mine shaft at 45 ft. were barren blue clay with water-worn pebbles of hard shale, quartzite, and a fine-grained granitic rock, which sometimes have an envelope of iron oxides, while the blue clay sometimes has shells of iron oxides with blue clay cores; blue clay carrying white mica and small pockets of white clay; and a soft band of sulphides. At the surface, on the east side of the ground, there is a big blow of quartz, which is, I am told, barren. Close by, however, and at some depth from the original surface, there was found a pocket of yellow clay that afforded 2 tons of tin ore. This clay carried 30-50 per cent tin dioxide. Again, above the 150-ft. level north, in "Anderson's," the Chinese miners found a rich bunch of ore in soft ground that was mined, it is believed, to within 50 ft. of the level.

The tin ore mined occurs not only in the soft clay, but also in the ironstone. It is of an unusual type, being almost always in the form of very small and slender, but sharply defined, pale yellow needles. At Glen Reef beautiful spongy masses of these crystals have been found. In one case similar ore formed a pillar standing in clay. After an examination of a considerable number of preparations, I have failed to find tourmaline or other boron minerals in Bundi specimens. Mr. Sydney Fawns, however, mentions both tourmaline and axinite. The same author mentions topaz.

Tin ore has been found in the hard granite, but not in sufficient quantities to warrant following it up far. In Glen Reef quartz and tin ore, and some sheared material with tin ore, were found in the crosscut under the deposit. In "Anderson's" the crosscut at 150 ft. follows a thin green seam. The 150-ft. level, north and south, follows a thin line of sheared granitic rock and quartz. Where the green band cuts the latter tin ore was found, and Mr. Thomas thinks that tin ore has been found in small patches all along the level. In the 200-ft. crosscut the green band was found again, and also tin ore, on which a winze was sunk for 40 ft. Among the débris at the head of the shaft is a green rock like the band in the crosscut. Sections show it contains quartz, chlorite, a colorless mineral in small irregular grains which is probably enstatite, fibrous amphibole, and cassiterite. Mr. Warnford Lock sent me a specimen like this, but containing no cassiterite. Sections of tin ore from the granite in "Anderson's" show, in some cases, the probable enstatite, but no trace of tourmaline.

When we consider that to a depth of 100 ft. and over a considerable area of the whole deposit, Chinamen have turned the ground at Bundi, and if, further, we consider the limited sections available during a visit of four days, it will readily be understood that no great confidence can be felt of arriving at a correct interpretation of the data collected. Nevertheless, I think that the preceding paragraphs and the microscopic examination of specimens in my office lead to the conclusion that we are dealing with a large mass of soft granitic rock of the nature of pegmatite, carrying rich masses of tin ore; and that the tin ore in the hard granite marks the tailing off of the rich masses where the soft pegmatitic clays pass into ordinary granite. The evidence in the Glen Reef crosscut and that of the Chinese work above the 150-ft. level in "Anderson's" strongly support the latter part of this statement. The occurrence of sheared material favors the existence of veins of ore as opposed to ore in masses, it is true but the extent of such stone is very limited. The blue clay with pebbles has not been found deeper than 90 ft., according to Mr. Thomas; and since similar clay with similar pebbles occurs in the banks of a stream hard by, it is possible that the Chinamen used it as a filling. That the ironstone in it could be formed during the period which has elapsed will not be gainsaid.

The whole deposit is usually spoken of at Bundi as a gossan, and the fact that ironstone has been found along a line stretching two miles to the south and three miles to the north has been adduced as evidence of the continuation of a lode. But, although I admit the argument may be borne out by facts, I must remark that iron stone in this country is very common. Ironstone alone does not constitute the "iron-hat" of the German proverb.

In all essential points Bundi and Sungei Lembing at the present day agree only in being tin-mining concerns.

Before leaving this subject I would mention that Lacroix records similar ore at Hin-Boun, in the province of Cammoun, Indo-China, but not, apparently, in situ. The elongated prisms are enclosed in limonite and are not accompanied by any of the usual satellites of cassiterite. It is believed that the ore was originally in limestone.

THE MACHI TIN FIELD

This tin field lies to the south of Bentong and is not far from the Negri Sembilan border. The new road from Bentong to Kuala Pilah passes about three miles to the west of it.

Mining is carried on by Chinamen on tribute in the valleys of the Machi and the Baris. The ore is alluvial and shallow, generally about 12 ft. in depth. The pay-dirt is sandy, and there is little or no amang (black sands) to hinder dressing. The associated pebbles are of quartz, hard blue shale, and carbonaceous shale. The bedrock is of the same character. In one place two distinct beds of pay-dirt were found. The lessees are the Société des Etains de Kinta and Sheikh Abdul Raman. The tributers work open-cast and by shafting. The dressing is extremely rough, and Sheikh Abdul Raman told me that his tributers refuse to rewash the tailings. I brought a bag of tailings away with me, and found the sample contained 2.32 katis per cubic yard. The ore is angular, and varies so much in grain that, without classification, a large loss in dressing can only be expected.

(To be continued.)

AN INTERNATIONAL MONEY SYSTEM

M. René de Saussure, the eminent Genovese scientist, has recently contributed an article to the *Journal de Geneve* and to the *International Science Review* upon this subject. Speaking of the burden imposed upon all international financial relations by the diversity of money values, he strongly advocates an international system (to be used, of course, only as "monnaie de compte") as a medium of exchange without in the least interfering with the coinage of the various nations.

The point of union would be a gold piece of eight grammes—almost exactly equivalent to one pound, twenty marks, five dollars, and twenty-five francs—being in fact but one-third of a penny different from the value of a pound sterling. But for the sub-divisions the point of union must be decimally divided, and M. de Saussure would give the name of speso to a ten thousandth part of the gold coin; then a spescento (one hundred spesos) would equal twenty centimes French and a little over 2½d English; a spesmil (one thousand spesos) would equal two shillings, two marks, half a dollar, one yen, half a peso, etc.

1 franc	396	pesos.
1 shilling	499	do.
1 dollar	2,051	do.
1 mark	489	do.
1 kroner (Austrian)	416	do.
1 rouble	1,056	do.
1 kroner (Scandinavian)	550	do.
1 florin	826	do.
1 milreis	2,217	do.
1 rupee	970	do.
1 yen	1,091	do.
1 peso	2,019	do.

IDEAL CONCRETE MACHINERY COMPANY AGAIN ENLARGES

The Ideal Concrete Machinery Co., of South Bend, Ind., have completed a deal for the purchase of the plant, business, patents, stock and good-will of the White Cement Machinery Co. of Jackson, Mich., thereby bringing into the "Ideal" family a number of machines that make the line wonderfully complete, and will doubtless result in practical control of the concrete machine industry.

The simplicity and other merits of the former "White" machines for the manufacture of cement sills, steps, side-walks and posts, have made them famous for years among concrete block makers and contractors in all parts of the United States. These features appealed particularly to the Ideal Concrete Machinery Co., realizing as they did, that the addition of the "White" machines would make the Ideal line complete, universal and invincible.

The former "White" machines will hereafter be manufactured with the Ideal machines, and will be known as the Ideal Sill, Side-walk, Step and Post Molds. The recently enlarged manufacturing capacity of the Ideal Concrete Machinery Co. places them in position to handle this increased volume of business without delay, and orders for the new Ideal machines will be filled as fast as received.

An elaborate catalogue has recently been issued by the Ideal Concrete Machinery Co., which to all intents and purposes is an encyclopedia on concrete block manufacture. It is sent free on application, and will prove interesting and valuable to builder and manufacturer alike.

PUBLIC WORKS IN NEGRI SEMBILAN

According to the annual report of the Federated Malay States for the fiscal year 1906 over one million dollars are spent in the construction of roads, streets, bridges, works and buildings. The appropriation for the year was $1,302,646 of which $1,170,324 were spent.

The Seremban water supply was completed by the end of the year, the water being distributed to many Government quarters and supplied to the town by means of dipper fountains. The water is said by the Health Officer and Bacteriologist, Kuala Lumpur, who examined it recently, to be the best he has seen in the Federated Malay States and the supply is ample. A special pipe connects the hospital reservoir with the main pipe before the latter reaches the main service reservoir.

The building of the new Residency made fair progress during the year: its completion is, however, said to have been much delayed by wet weather The new Government Office at Kuala Pilah was completed and occupied during the year. This is an excellent building. In Seremban town the work of lowering and regrading Paul Street was completed. It is now a very fine main thoroughfare. In the district the earthwork of the road to join Labu with the Sepang road, in the Selangor system, was completed. The final section in the Negri Sembilan portion of the Kuala Pilah-Bentong road was completed by the contractor as regards earthwork and bridging. The length of metalled cart-roads was increased during the year by 15 miles.

JAPAN'S SUGAR REFINERIES

The sugar-refining industry in Japan is steadily growing, the monthly output of sugar at present amounting to 250,000 piculs, of which 100,000 piculs are produced by the Dairi Sugar Refining Company, and 150,000 piculs by the Japan Sugar Refining Company. Three new refining companies—the Yokohama, Nagoya and Kobe—are expected to commence operations before the end of the year, when the total monthly output will increase to 400,000 piculs

FAR EASTERN COMPANY REPORTS

PERAK RUBBER PLANTATIONS

At the first annual meeting of this company a net profit of £1,014 was carried forward.

BALGOWNIE RUBBER ESTATES

At the general meeting of the Balgownie Rubber Estates the net profit of $10,412 for the year ending March 31 was directed carried forward to next account.

BUKIT RAJAH RUBBER CO.

A final dividend of 25% making 30% for the last fiscal year has been declared by the Bukit Rajah Rubber Co.

BANGKOK MANUFACTURING CO.

At a recent meeting of the directors of this company it was decided not to pay any dividends for the first half year, 1907.

JAVA RUBBER AND PRODUCE CO.

The first general meeting of this company was held recently and while no dividend was declared, the progress made during the year was voted highly satisfactory.

SHANGHAI AND HONGKEW WHARF CO.

The shareholders of this company have declared an interim dividend of Tls. 8 or equal to about eight and one-quarter per cent per annum.

ASTOR HOUSE HOTEL

This company declared a dividend of $3 for the year per share equivalent to eleven and one-quarter per cent per annum.

WEST POINT BUILDING CO.

An interim dividend of $2 for the half year ending June 30, 1907, was paid July 9. This sum per share is equivalent to eight and one-half per cent per annum.

HONGKONG ROPE MANUFACTURING CO.

This company has paid an interim dividend of 80 cents a share for the six months ending June 30. This is equivalent to eight and three-quarter per cent.

HONGKONG STEAM WATER-BOAT CO.

(IN LIQUIDATION)

The assets and liabilities of the company have been taken over by the Union Waterboat Co. for the sum of $127,500 to be paid to the shareholders of the old company in the form of shares in the Union Waterboat Co. The report of the liquidator was approved by the shareholders, August 9, and the affairs of the old company wound up.

YOKOHAMA ENGINE AND IRON WORKS, LTD.

A final dividend of 5% was declared by this company on July 31 making in all 15% for the year ending May 31, 1907.

THE IMPERIAL COMMERCIAL BANK

This institution has declared a dividend of 5% per annum and carried forward 23,679 yen for the half year ending June 30.

THE HYPOTHEC BANK OF JAPAN

This institution shows a net profit for the half year of 340,860 yen out of which two dividends of 5% each have been paid.

FUJI COTTON MILL CO.

A dividend of 25% per annum has been declared by the shareholders of the Fuji Cotton Mill Co. The total net profit for the year was 1,532,945 yen.

THE KANJO GINKO

A dividend of 15% was declared at the fourth semi-annual meeting of the shareholders of the Kanjo Ginko, Seoul, last month.

THE JAPANESE KEROSENE OIL CO.

The shareholders of the Japan Kerosene Oil Co. have declared a dividend of 32%.

THE NIPPON RAILWAY CO.

The shareholders of the Nippon Railway Co have declared a dividend of 11.5%.

THE TOKIO FARMERS' BANK

At the semi-annual meeting of the Tokio Farmers' and Mechanics' Bank held recently a dividend of 10% was declared.

HOKKAIDO SEIMA KAISHA

At the recent general meeting of the Hokkaido Seima Kaisha a dividend of 13% was declared and the proposal to amalgamate with the Nippon Seima Kaisha was unanimously adopted.

NIPPON RAILWAY CO.

The directors of the Nippon Railway Co. have declared a dividend of 11.5% for the last fiscal year.

THE DAI NIPPON BEER BREWERY CO.

This company has declared a dividend of 15% for the half year besides setting aside 180,000 yen as a reserve and paying its employees a bonus of 27,835 yen.

THE RUSSO-CHINESE BANK

The directors of the Russo-Chinese Bank have declared a dividend of 9% after setting aside 700,000 roubles for the reserve funds. The net profit of this institution for the year was 3,585,102 roubles.

TOKIO FERTILIZER CO.

The Tokyo Artificial Fertilizer Company declared a dividend for the first half of this year at the rate of 16 per cent per annum at a general meeting of the shareholders held on July 29. A resolution was also passed to increase the present capital of 1,500,000 yen to 3,000,000 yen.

FIRST BANK OF JAPAN

The semi annual ordinary general meeting of the shareholders of the Dai Ichi Ginko (First Bank) was held on August 2, when a dividend for the first half of this year was declared at the rate of 10 per cent per annum. The sum of 429,440 yen was carried to next account.

THE DORDT PETROLEUM CO. OF JAVA

This company has declared a dividend of 425 per cent for the year 1906 and gives some idea of the enormous profits in successful oil ventures in that section. This dividend is the highest yet recorded in the history of the company. In 1899 it paid a dividend of 418 per cent and in 1900, 408 per cent.

THE GRAND HOTEL CO., YOKOHAMA

The net profit of this company for the half year just ended amounted to 64,735 yen out of which a dividend of 6 yen was paid per share.

OSAKA CEMENT CO.

A dividend of 20% has been declared by the Osaka Cement Co. for the half year ending June 30. In addition to paying this l rge dividend the directors placed 70,000 yen in the reserve fund and carried forward a surplus of 17,000 yen.

STRAITS TIMES PRESS

The above company has declared a half-yearly dividend of $5 per share.

OSAKA SHOSEN KAISHA

A semi-annual dividend of 6% was declared by this company besides writing off for insurance yen 252,000; repairs, yen 411,000; depreciation, yen 291,000; reserve fund, yen 53,000; carried forward, yen 705,012,677. A large part of the net profit was realized from the sale of the company's steamers running on the Yangtsze.

SIAMESE TRAMWAY CO.

At the fifth regular meeting of this company at Bangkok a dividend of 2% for the half year ending March 31 was declared.

GODO COTTON SPINNING CO.

The shareholders of this company have declared a dividend of 30% for the year and divided 513,000 yen between the reserve and surplus out of the net profits.

BRUSEH TIN MINING CO.

A final dividend of ten per cent, making twenty per cent for the year, was recently declared by the shareholders of this company.

UNITED ASBESTOS CO.

The United Asbestos Co. has paid a dividend of 80 cents on ordinary shares and $19.80 on founders' besides adding $10,000 to the reserve.

HONGKONG, CANTON AND MACAO STEAMBOAT CO.

At the half yearly meeting a dividend of $1 was declared by the shareholders of this company which equals about 7% per annum.

BANK OF RANGOON, LTD.

A dividend of five per cent, free from income tax, has been declared by the Bank of Rangoon for the half year ending June 30, 1907.

TOKIO COTTON SPINNING CO.

An interim dividend of 20% was declared by this company for the half year ending June 30.

THE TOKIO GAS WORKS

The shareholders of the Tokio Gas Works declared a dividend of 15% for the half year ending June 30.

HONGKONG AND WHAMPOA DOCK CO. LTD.

The above company has declared a half-yearly dividend of 8% or $4.00 a share and carried forward $490,000 besides passing $100,000 to special account.

SHANGHAI TUG & LIGHTER CO. (LTD.)

The Shanghai Tug & Lighter Co. recently declared a dividend of three and one-half per cent on preferred shares and three and one-half per cent on ordinary shares for the year ending June 30, 1907.

SEEBPORE COAL CO.

The Seebpore Coal Company has a good report. The shareholders receive a dividend for the half-year at the rate of 28½ per cent per annum.

BENGAL-NAGPORE COAL CO.

The Bengal-Nagpore Coal Company have an excellent report for the first-half of this year. The shareholders receive a dividend at the rate of 40 per cent per annum.—*Railways.*

FUJI SPINNING CO.

At the general meeting of the Fuji Spinning Co. a dividend of 25% per annum was declared for the half year ending June 30, 1907. In addition to this amount, 571,645 yen were carried forward.

TIENTSIN WATER WORKS CO.

A dividend of six and one-half per cent was declared at the annual meeting of the Tientsin Water Works Co. recently.

PERAK RUBBER PLANTATIONS

No dividend was declared at the first annual meeting of the Perak Rubber Plantations Co. as only one-sixth of the estates controlled by the company was producing. The prospects for the company seem to be the best and the accounts for the year show a net credit balance of £1,014.

SHANGHAI DOCK & ENGINEERING CO.

The net profits of the Shanghai Dock and Engineering Co. (Ltd.) for the year ending April 30 amounted to Tls. 76,059.95 from which a dividend of Tls. 3 per share was declared, leaving a balance carried forward of Tls 10,459.95

THE NIPPON KOGYO GINKO

The Nippon Kogyo Ginko held its regular half-yearly meeting August 5 and the bank declared a dividend of seven and one-half per cent for the term just ended.

NEW PUBLICATIONS

THE JAPAN YEAR BOOK 1906; Published by the JAPAN YEAR BOOK OFFICE, 31 Kobiki-cho, Kuchome, Tsukiji, Tokyo. Price: Yen 3.50 or 7s net. Sole Agents for Europe: THE JAPAN PRESS, 7 Byward Street, London, E. C.

This timely publication gives in a comprehensive form a wealth of data concerning Japan, and things Japanese. The book contains some 550 pages replete with useful information invaluable to journalists and merchants. The 80 pages devoted to "Who's who in Japan" are especially interesting at this time as giving a sidelight on the careers of the men who contributed to the development of the Empire and advancement of Japanese prestige throughout the world.

Specifications for Street Roadway Pavements by S. Whinery, M. Soc. C. E.—The Engineering News Publishing Co. of New York has just issued this interesting and valuable volume from its presses. The preface to the volume has the following introduction which explains the purpose of the work:

"In addition to their value as memoranda and aids in preparing specifications for a particular project, carefully prepared general specifications, embodying the latest approved practice, sometimes supply the most useful and acceptable brief treatises upon any particular branch of engineering work. It has been partly with this thought in mind that the following set of specifications for standard street pavements has been prepared and is now offered to city engineers and municipal authorities.—Paper $0.50."

Pocket Map of the Philippine Islands, by Messrs. Kemlein & Johnson, Manila, P. I., and issued by the German-American Book Store. This publication will be found invaluable as it contains a complete railroad map of the islands including the lines in operation and the proposed routes under construction.

HONGKONG-MANILA DIRECTORY BY THE ROSENSTOCK PUBLISHING CO., MANILA, P. I.—This new publication, recently issued, has been warmly welcomed by the residents and business-men of Hongkong and Manila. The compilation of the names and addresses of the foreign inhabitants of Hongkong in alphabetical order is an innovation in the way of a city directory there and the liberal support given is an indication of the endorsement received. The Rosenstock Publishing Co. will soon issue a Shanghai Directory from its presses. The price of the Hongkong-Manila Directory is ₱12.00 per annum.

Directory of the Engineers' Club of Philadelphia for 1907.—This neat and handsomely bound pocket directory is corrected up to May 13th, inclusive, and contains a complete list of the officers and members of one of the oldest and most important professional clubs in the United States. The president is Henry H. Quimby, with Washington Devereux and W. P. Dallett as vice-presidents and Walter Loring Webb as secretary. George T. Gwilliam is treasurer. The Engineers' Club of Philadelphia was organized in December, 1877, and incorporated in 1892.

The Philippine Journal of Science for July.—Contents: MERRILL, ELMER D.—The Flora of Mount Halcon, Mindoro; AMES, OAKES—Orchidaceæ Halconenses: An Enumeration of the Orchids Collected on or near Mount Halcon, Mindoro, chiefly by Elmer D. Merrill; BROTHERUS, V. F.—Musci Halconenses; MERRILL, ELMER D.—Index to Philippine Botanical Literature, II.

Panay and Negros Industrial Number of the Manila Daily Bulletin.—**This special issue of Manila's leading commercial daily is one of the most valuable numbers to its credit in its eight years faithful service in the interests of Philippine commercial development. The number contains a resume of the history of the development of the sugar industry of the two provinces and is splendidly illustrated throughout. One of its principal features is a railroad map of the two provinces, reproduced on the cover, showing every station along the proposed route of the Philippine Railway Company.**

In addition to the review of the agricultural wealth of the provinces referred to, the publication contains an interesting article on the commercial conditions of that territory from the pen of Mr. J. S. Stanley, collector of customs for Iloilo. Typographically it is a credit to the publishers. Any one desirous of first hand information in regard to the fertile provinces of the Southern isles will find it invaluable. Price ₱1.00.

THE ORIENTAL CONSOLIDATED MINING COMPANY, KOREA

The report of this New York company, which is operating gold mines in the Wunsan district, in Korea, deals with the operations in the year ended June 30, 1906. Although the Russo-Japanese war ended in October, 1905, a large amount of trouble was experienced at the mines through scarcity of competent labor and lack of transportation facilities. This resulted in a reduction in tonnage crushed in the mills of 21,230 tons as compared with the returns for the previous fiscal year. The total amount of ore mined in the company's properties was 233,157 tons valued at $1,177,487, or an average of $5 per ton. In addition to the above the mines operated on tribute, or lease agreements, produced 3260 tons of ore valued at $20,150. The average mining cost, including all underground development work done during the year, was $1.14 per ton. The operating profit was $367,882, and of this amount a sum of $140,637 was expended in new construction, leaving a net balance of $227,245. Six of the company's mines were operated during the year, and their returns were as follows: Chittabalbie produced 8946 tons of ore valued at $26,753; Tabowie produced 43,473 tons valued at $213,367; Taracol produced 91,936 tons valued at $497,954; Kuk San Dong North produced 28,146 tons valued at $142,964. Kuk San Dong South produced 23,065 tons valued at $93,660; and the Charabowie produced 37,591 tons valued at $202,788. Milling costs varied from 0.45c. per ton in the Kuk San Dong ore, to 0.80c. for the Chittabalbie. The combined operations of the Tabowie and Taracol cyanide plants resulted in the treatment of 31,611 tons valued at $395,271. The bullion return was valued at $255,518, and the percentage extraction 64.6. In order to improve the extraction a small plant was built at the Taracol mill consisting of a tube mill 24 in. in diameter by 12 ft. in length, fitted with two agitators, gold tanks, zinc boxes and sump tanks. The results of experimental runs of 6-ton lots, lasting 30 hr., approximated a theoretical extraction of 93 per cent. The average extraction at the Kuk San Dong mill was 80 per cent., and a net profit of $7795 was obtained by retreating 12,529 tons taken from the old Taracol cyanide dump. The results of the experiments carried out in the various cyanide plants during the year clearly demonstrate that it is essential to regrind all the material going to the vats in order to raise the percentage of cyanide extraction.

Development in the various mines was vigorously carried out during the year. It was estimated in 1905 that the Chittabalbie mine, which, with the Charabowie, is situated on a distinct line of reef from the other mines, and lies toward the southern portions of the concession, had an ore reserve of 7600 tons, valued at $22,375, and during the period under review an additional tonnage of 1346 tons was opened up. All of this ore has now been mined and it is intended to continue to develop the reef by sinking the main shaft deeper. The ore reserves in the Tabowie mine are estimated at 465,136 tons, valued at $2,739,327. The prospects in this mine are so favorable that it has been arranged to enlarge considerably the Tabowie mill. In the Taracol mine the reserves amount to 308,758 tons, valued at $1,765,452. The vein is 16 ft. wide, and averages $10 per ton in value about 700 ft. out from the shaft on No. 2 level west. Above the No. 3 level west the ore averages $4 per ton. The main shaft has been sunk to a depth of 629 ft., and No. 5 level having been run out, it is proposed to continue sinking another 100 ft. during the present year, and developing Nos. 6 and 7 levels.

The development work in the Kuk San Dong North mine was most satisfactory and resulted in opening up by rises and cross cuts above and to the east of No. 7 tunnel over 37,000 tons of ore of an average value of $5 per ton. The ore reserves in the Chintui mine amount to 20,000 tons valued at $100,000.

During the year the company's placer ground was prospected with a Keystone traction drill. Frozen ground stopped the work in December, after 17 holes had been drilled; but work was resumed in April, 1906, and up to the end of June over 50 holes were put down. The average value of the ground thus prospected was found to be 6c. (U. S. gold) per cu. yd. About 40 of the holes were sunk near the electric power house, 5 miles south of the Tabowie camp. It does not appear that any of that ground is rich enough to yield a working profit. Beginning at the power house and extending down the valley in a southeasterly direction a distance of 4000 ft., there is a narrow channel, the width of which has not yet been determined, averaging 12c. per cu. yd. in value. At a point 5 miles lower down the river there is another channel a mile in length, which was found to average between 10 and 12c. cu. yd. The depth of the deposit runs from 9 to 23 ft., with an average depth of 16 ft. The gold is mostly found close to the bed-rock. The bed-rock is fairly soft, and the gravel is fine and free from clay, and it is possible that it would be suitable for dredging. The gravel deposits in the concession similar to the above, but which have not been prospected yet, consist of some 40 or 50 miles of river valleys varying in width from a few hundred feet to a mile. Although the early prospects are not very encouraging, the superintedent proposes to continue prospecting the grave deposits with the drill during the present year.

The Chorrie dam, which supplies the mines and mills with water and water power, was repaired, and the dam now holds over 120,000,000 cu. ft. of water. The Taracol and Tabowie camps are furnished with electrical equipments, the power for which is furnished by hydraulic turbines.

General Manager H. F. Meserve reports that local conditions due to the Russo-Japanese war, which disturbed the supplies of labor, cordwood and mining timber, and made transportation difficult, are slowly improving, and it is expected that he will be able to keep the Taracol, Tabowie and Kuk San Dong mills running steadily throughout the present year. He estimates the ore reserves at present developed in the company's properties at over $1,000,000 tons, or $5,300,000 in value.—*Engineering and Mining Journal.*

HARMONIC TELEPHONE

Fred H. Brown, of Long Beach, California, has patented a remarkable invention which he calls the harmonic telephone and which is practical as well as mystifying in its results. It is wireless. A phonograph is attached to a microphone and wires lead from this to an induction coil. From this the music of the phonograph is led to a coil of wire placed vertically and from which the vibrations are transmitted to the air. A person wearing another induction coil in his hat band or under his coat with an ordinary telephone receiver attached may wander at will in the vicinity of the transmitter and hear clearly the music of the phonograph. A person in Los Angeles can hear the music in San Francisco, the inventor asserts.

BRENNAN'S MONO-RAIL RAILWAY

When Louis Brennan completes the mono-rail car having a width of 16 feet and demonstrates to the British government that its operation is feasible, there is every prospect that there shall be a complete revolution in present day methods of transportation. The successful demonstration made by this well-known inventor with his models has created a sensation and so impressed the British government that the latter is spending $25,000 in experimental work under the direction of the inventor.

The inventor predicts that the railway car of the future will be several times wider and two or three stories higher than those at present in use. The successful operation of the Brennan car is due to the use of the gyroscope principle in maintainnig the equilibrium of each car. The illustrations accompanying this article which are from *Popular Mechanics* give a comprehensive idea of the principles involved. Of his invention Mr. Brennan says:

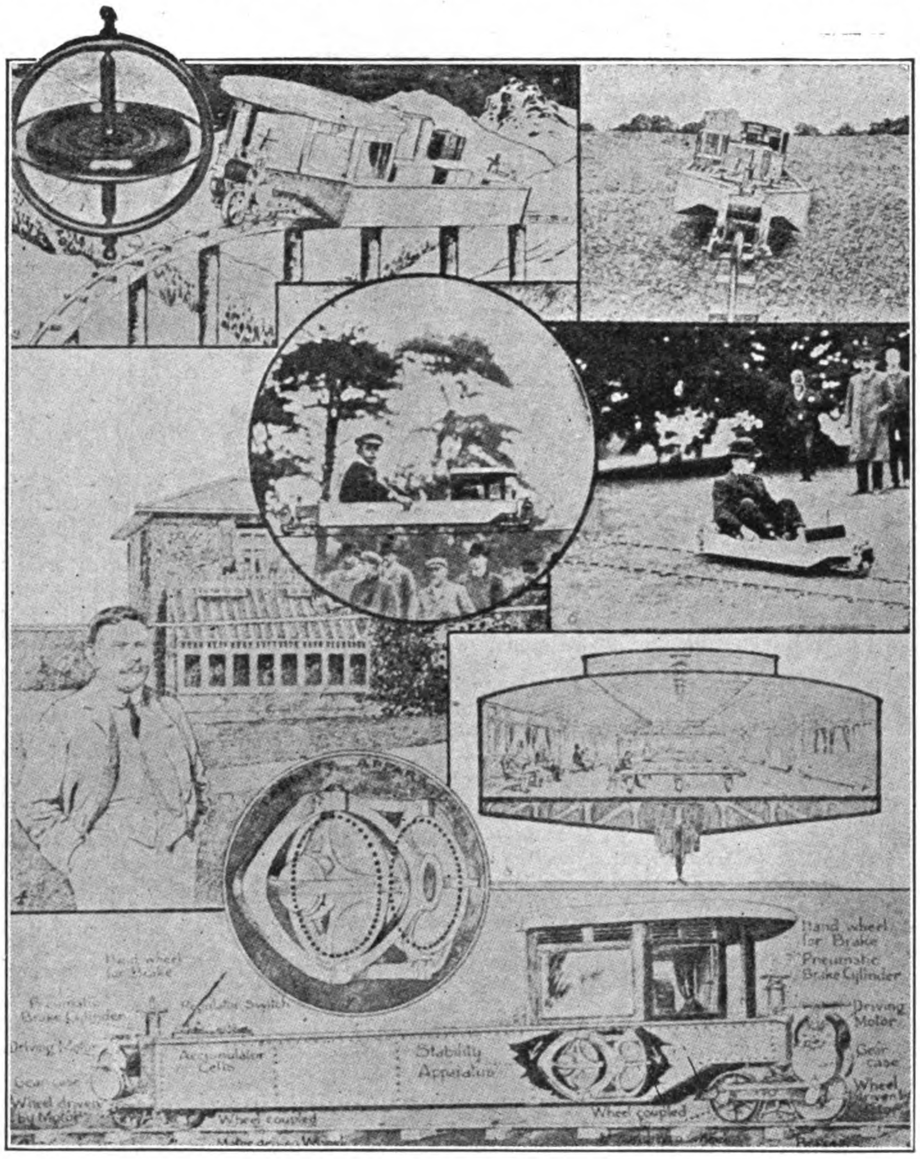
"The characteristic feature of the system of transportation is that each vehicle is capable of maintaining its balance upon an ordinary rail laid upon ties on the ground, whether it be standing still or moving in either direction at any rate of speed, notwithstanding the center of gravity is several feet above the rail and the wind pressure, a shifting load, centrifugal action, or any combination of these forces may tend to upset it.

"Automatic stability, mechanism of extreme simplicity, carried by the vehicle itself, endows it with this power. The mechanism consists essentially of two flywheels rotated directly by electric motors in opposite directions at a high velocity, mounted so that by their gyrostatic action their stored up energy can be utilized. These flywheels mounted on high-class bearings are placed in air exhausted cases, so both air and journal friction is reduced to a minimum, consequently the power required, to keep them in rapid motion is extremely small.

"The wheels are placed in a single row beneath the center of the car and are carried on bogies or compound bogies which are not only pivoted to provide for horizontal curves in the track but for vertical ones also. By this means the cars can run upon curves even of less radius than the length of the vehicle itself, or on crooked rails, or on rails laid over uneven ground without danger of derailment.

"The motive power may be either steam, petrol, oil, gas, or electricity. I use petrol (gasoline) and an electric generating set carried by the vehicle itself to supply the current to the motor's stability mechansim."

The toy top or gyroscope suggested the application of the self-balancing principle to the mono-rail car by Mr. Brennan, who has made a study of the subject for over 30 years and indeed applied it to the Brennan torpedo. It is claimed by the inventor that so long as a sufficiently high rate of revolution of the gyroscope wheels in the car is maintained it is not



1. THE ACTIVE PRINCIPLE OF THE BRENNNAN CAR: THE GYROSCOPE IN ITS SIMPLEST FORM, AS IT IS SOLD FOR A TOY—"THE TOP THAT CAN'T BE KNOCKED OVER." 2. THE VEHICLE ON THE PART OF THE TRACK REPRESENTING A MOUNTAINOUS DISTRICT, SHOWING THE WAY IN WHICH IT LEANS AUTOMATICALLY TOWARDS THE CENTER IN ROUNDING A CURVE. 3. THE VEHICLE ON LEVEL GROUND, SHOWING THE WAY IN WHICH IT LEANS AUTOMATICALLY AWAY FROM THE HEAVIER SIDE WHEN IT IS UNEVENLY LOADED. 4. THE INVENTOR AT HOME. 5. A BLONDIN FEAT: THE CAR CROSSING AN IRON HAWSER IN THE 6-FT. WORKING MODEL IN MR. BRENNAN'S GROUNDS, 5-FT. FROM THE GROUND AND KEEPING PERFECT BALANCE. 6. THE MODEL CAR CARRYING A 150-LB. MAN. 7. THE BRENNAN GYROSCOPE. 8. MR. BRENNAN'S IDEA OF TRAVEL IN THE FUTURE: A MONORAIL VEHICLE VERY MUCH LARGER AND WIDER THAN PRESENT-DAY RAILWAY CARRIAGES. 9. DETAIL OF THE CAR.

possible to upset the car. It is also claimed that it is possible to make as high as 160 miles an hour and at minimum cost for motive power. The use of the single rail saves in friction and rocking of the train alone over 50% of the energy lost in the operation of the passenger trains of the day.

Practically Mr. Brennan's gyroscope is made up of two steel wheels revolved at high speed in opposite directions, the wheels being supported on the best possible bearings and all encased in an air-tight enclosure. So perfect has the apparatus been constructed that, when the power is turned off, the wheels will revolve for forty-eight hours before coming to a dead stop. Each car must have its own balancing apparatus, 5 per cent of the total weight of the car being required for this purpose. Any power may be used to propel the train or to spin the gyroscope wheels, but a high spinning rate must be attained. With these conditions, it has been found possible to run the model trains at great speed and over all sorts of country. So long as a sufficiently high rate of revolution of the gyroscope wheels is maintained it is not possible to upset the car. The inventor claims that the sharpest curves —curves with a radius of the length of the car— may be taken at top speed without jar or jostle or vibration. More, instead of the rails being perfectly level, as are the tracks of our railroads to-day, the rail may undulate up and down.

To understand exactly how one of these cars works, glance at the accompanying illustration which shows one of the cars running across a hundred foot cable. Anywhere inside the body of the car, front or rear or middle, are a pair of fly-wheels mounted side by side and spinning in opposite directions. These wheels are run by electricity at a speed of something like 4,000 revolutions a minute. And this is all there is to the mysterious contrivance.

COTTON MILLS FOR CHIHLI

The Industrial Institute, which is a semi-official institute in Tientsin, has memorialized Viceroy Yuan, that all the districts of Chihli be instructed to establish spinning and weaving factories.

The petition points out that cotton cloth is an article of every day necessity, and the amount imported into China annually aggregates at least twenty million dollars. This represents a terrible drainage of capital out of the country. The promoters of the institute have contemplated the possibility of replacing all kinds of foreign piece goods by home manufactures, but local enterprise in this direction is handicapped by the need of proper machinery. Now the Japanese have made suitable machinery and can supply any number that may be required.

15,000 LOOMS.

The memorialists urge, therefore, that the various trading districts be instructed to take the matter up and obtain the necessary plant, the officials establishing the factories as government concerns or the merchants and people doing it independently. There are in Chihli 150 districts in which factories could be established, and with an average of 100 looms to each there would be 15,000 started at once.

One hundred pieces of cloth can be turned out by each machine, thus one million five hundred thousand pieces might be produced in a year, which will absorb one fifth of the total imports. This would afford this province an income of four million taels, and on the other hand it would save a similar amount from being poured out of the country.

NO FOREIGN ORDERS.

Arrangements have been made with the piece goods dealers that so soon as these factories are established orders will be placed with them instead of with foreigners, and great advantage is expected to be derived in this way. It is also urged that rewards be given to successful factories and those showing negligence be punished.

The Viceroy has approved the suggestion and steps will be taken to carry out the idea, especially, as we believe is probable, if favorable offers have come from Japan as to the setting up and superintending the proposed looms.

As was recently reported in these columns, a great impetus has been given to the Korean cotton growing trade, which would enable Japan to supply China with lower grade yarns at a cheap rate; and with Japanese spindles and Japanese instructors the path is made quite smooth for China to make a start.—*P. & T. Times.*

THE HEDJAZ RAILROAD

In 1900 the Turkish government began the building of a railroad from Damascus to the holy city of Mecca. Its total length will be about 1,120 miles, of which 440 had been built by the end of 1906, and the remaining 680 will be completed in course of time. Officially it is known as the Hedjaz Railroad, taking its name from that of the Arabian province through which it passes. For its construction no loans, foreign or domestic, have been raised. The labor for the grading is furnished by the army and the money necessary for bridge and masonry construction, superstructure, rolling stock and station building is obtained from the pious contribut ons of the faithful. It is an indication of the hold of the religion of Mohammed on the people, that these contributions are regularly bringing in $1,555,000 annually, and each year the road advances 60 to 100 miles. Not only does religious enthusiasm furnish funds and animate the troops employed, but it even deters the Bedouin from interfering with the work.

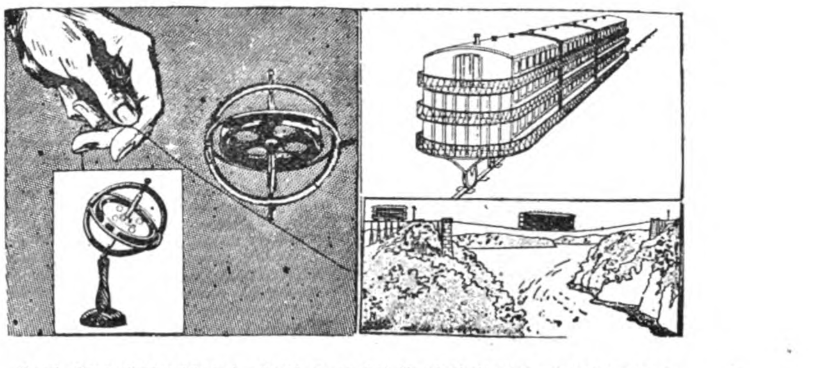
The road has a general southerly direction, and 300 miles south of Damascus enters the arid region. Here the difficulties of construction increase as the road advances due to the scarcity of water and the necessity of transporting everything required by man or beast either by train or caravan. These conditions continue till Medina is reached, 840 miles south of Damascus. The route follows quite closely that of the great Pilgrim road to Mecca. Indeed, the important points of the territory to be traversed were originally determined by engineers traveling as pilgrims with the holy caravan. The plan of operations is for a reconnaissance party to map out the country 90 miles ahead of the end of the road. This is followed by a locating party, whose notes are forwarded to a technical bureau with headquarters at the last large station of the already completed road, where the details of construction are worked out.

The distribution of the working parties is as follows: Three battalions of infantry, 3,000 men, are utilized for grading (earth and rock work), each man receiving an addition of 5 to 15 cents to his ordinary army pay. Contractors, mostly Italians or Austrians, construct the culverts, bridges, tunnels, buildings, etc., at stations, in short, carry out all work requiring mechanical ability. Two railroad battalions put in place a bedding of broken stone, place ties and lay rails. A company of pioneers brings up the rear, whose duty it is to finish up the roadway. For the telegraph line part of a telegraph company is detailed.

The gage of the track is 3 ft. 5½ in. At first wooden ties were used, but proving unsatisfactory in the dry and hot climate, their use was abandoned in favor of iron ties. Rails weigh 43½ lbs. and the superstructure (ties, rails and fittings) average 218 lbs. per running yard. The rolling stock consists of 43 locomotives, 522 freight and 31 passenger cars. Ordinarily it is nearly all employed for construction purposes, but at the time of the Great Pilgrimage to Mecca, it is all devoted to the transportation of pilgrims. At that season five large pilgrim trains leave daily, the large quantity of water, provisions, riding and pack animals required for the journey to Mecca having been accumulated in advance at the point of departure of the caravan.

The railroad employees, engine runners, firemen, station men and section hands are mostly natives, and they are not very satisfactory.

The engineer at the head of the enterprise is Meissner Pascha, a German officer who has had large experience in connection with railroad work in Turkey. While at first a large number of foreign engineers were employed, these have gradually been replaced by Turkish officers and young Turkish engineers who have been trained at technical schools, so that at the present time they form the greater part of the engineering staff.—*Zeit. d. v. Deutscher Eisenbahnverw'ng.*



THE TOY GYROSCOPE—THE CAR OF THE FUTURE—CROSSING A CHASM

AMERICA'S FAR EASTERN BUREAU

With the view of placing all diplomatic and Consular matters relating to Japan and China in the hands of officials familiar with conditions in the Orient the State Department has perfected the organization of a "Far Eastern Bureau," which will have charge of all correspondence and preliminary treaty negotiations with the Oriental governments. This new departure is more or less in the nature of an experiment, which if it proves satisfactory, may lead to the organization of similar bureaus to conduct diplomatic and Consular correspondence and negotiations with the Central and South America republics and European and Asiatic countries.

Huntington Wilson, third assistant secretary of state, who for a number of years served as secretary to the American legation and embassy at Tokyo, is chief of the new bureau. His two assistants are Percival Heintzleman of Pennsylvania, formerly student interpreter attached to the American legation at Peking and later vice-deputy-consul-general at Canton and Dalny, and William Phillips of Massachusetts, formerly private secretary to Ambassador Choate at London, and for the past two years second secretary to the American legation at Peking. Phillips arrived from Peking a few days ago to enter upon his new duties.

All of these young diplomats speak and read the Oriental language, are familiar with the domestic politics of the Far Eastern nations and well versed on questions of diplomacy now pending between the United States and the Oriental countries. The preliminary negotiations between this country and Japan in drafting a new treaty probably will be referred to the bureau.

Another important duty which will devolve upon the newly organized bureau will be that of considering the new positions and diplomatic notes which are annually presented to the State Department, suggesting changes in the existing treaty between the United States and China.

PASIG ELECTRIC RAILROAD EXTENSION

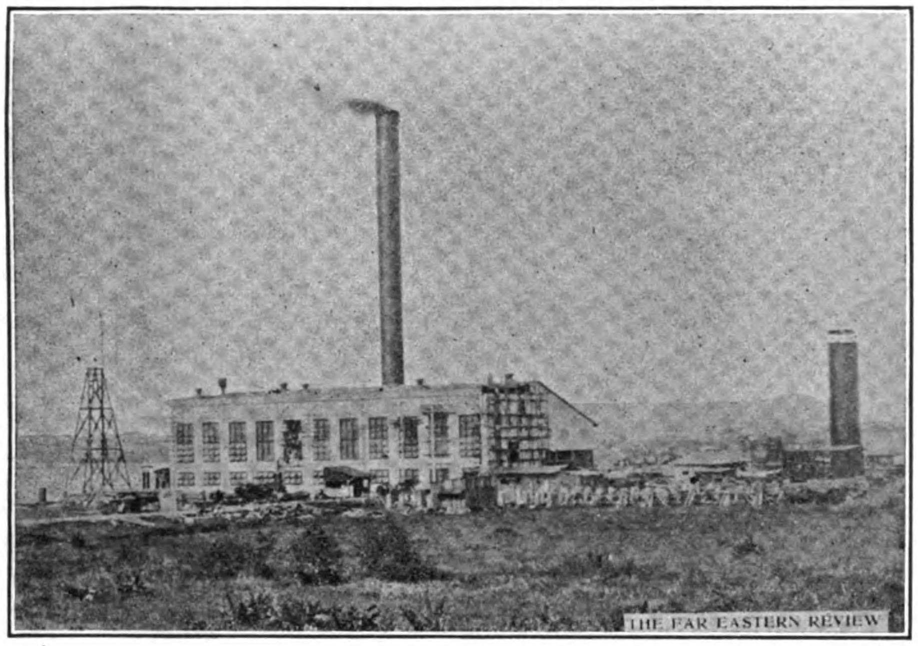
The Pasig Extension of the Manila Electric Railway, when completed, will cost approximately half a million gold and will tap one of the richest and most densely populated sections of Luzon besides affording ample transportation facilities to and from Fort Wm. McKinley, the largest military post in the Philippines. The line is about eight miles in length and Messrs. J. G. White & Co. are in charge of the work of construction.

The line to McKinley was opened April 18 and it is expected that the entire extension will be thrown open to the public in a few months. The following report made by W. E. Conklin, Ass't Superintendent of Construction for Messrs. J. G. White and Co., to Mr. R. T. Laffin, Second Vice-President and General Manager of the Manila Electric Railroad and Light Co., gives some interesting details covering the physical features of the extension:

'The line consists of approximately eight miles of single track with sidings and two terminal loops—one in Pasig, the other in Fort McKinley. It extends from the Manila Electric Railroad & Light Co.'s line in Santa Ana through the Post of Fort Wm. McKinley to the city of Pasig. All of this line is on private right-of-way excepting about one-half mile along the streets of Pasig. The grading for the line is quite heavy, amounting to over 62,000 cubic yards, of which more than one-half is of rock. The maximum grade on the line is four per cent. The minimum radius of curvature—excepting for the terminal loops—is 300 feet, and this only occurs within the streets of Pasig.

"BRIDGES.—The bridge across the Pasig river consists of one channel span of 200 feet with steel trestle viaduct approaches, making the total length of the bridge about 430 feet. The bridge is divided longitudinally into two parts: one for track and the other for the highway. The channel span will have a minimum clearance above mean low water of 26½ feet. Foundations are entirely of concrete, which are carried to rock where possible, and elsewhere are supported on piles. There are three other steel bridges on the line, all plate girders averaging about 40 feet in length. All of the culverts—except small openings for which pipe of 18 inches or less diameter could be used—are concrete boxes, with reinforced roofs and concrete paving.

"TRACK CONSTRUCTION.—Crushed stone ballast is used throughout the line with a depth of eight inches under the ties. The ties are mostly of native hard woods; the rails of 70-pound "T" section. Siding switches on the private right-of-way are all standard split switches with No. 9 spring frogs. The track is bonded with two 4-0 copper terminal bonds in each joint. Block signals are provided to protect each section between turnouts. Telephones are erected at convenient points along the line for communication with the office. Neat and attractive waiting rooms are built at all important stopping places on the private right-of-way.



VIEW OF THE POWER HOUSE OF THE MANILA ELECTRIC RAILROAD & LIGHT CO., CONSTRUCTED BY MESSRS. J. G. WHITE & CO., FROM WHICH THE POWER FOR THE OPERATION OF THE PASIG EXTENSION IS FURNISHED

"POWER.—The power for operating the line is furnished by the steam generating plant of the Manila Electric Railroad & Light Co. and is transmitted to a rotary substation at 3,300 volts. From this it is carried by feeders to the trolley. Double 2-0 trolley is used throughout the line. The poles are of Ipil, one of the strongest and most durable of Philippine woods, and are all set in concrete.

"ROLLING STOCK.—For the construction of the line and the operation of freight service seven flat cars have been built; all equipped with air brakes. Three of these cars are equipped with four 75-H. P. motors each. The cars are designed to carry a live load of about 25 tons. The passenger cars are of American manufacture and are equipped with four 40-H. P. motors each, air brakes and arc headlights. The seating capacity of each car is 36."

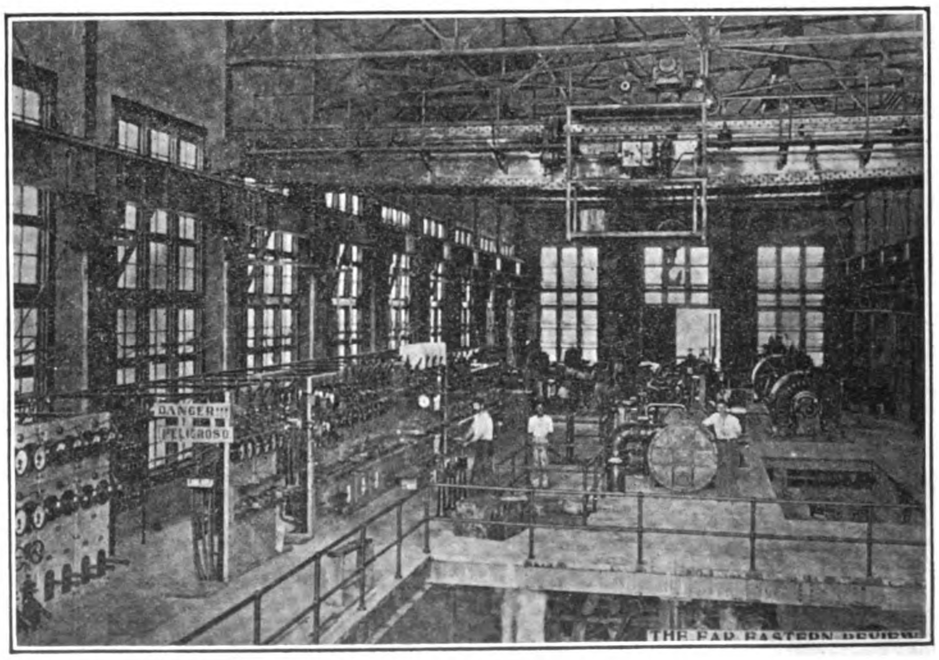
Besides the large passenger traffic enjoyed by this road, it is the purpose of the management to provide ample facilities to handle all the freight that comes to its hand. The military supplies for the fort will form one of the more important sources of revenue and at the same time greatly reduce the cost of transportation to the American government. When the new port is completed a branch of the city system will be built to the docks and the supplies for the fort will be carried over the city lines to the junction at Santa Ana and from there over the extension to their destination.

PHILIPPINE RAILROAD CONSTRUCTION

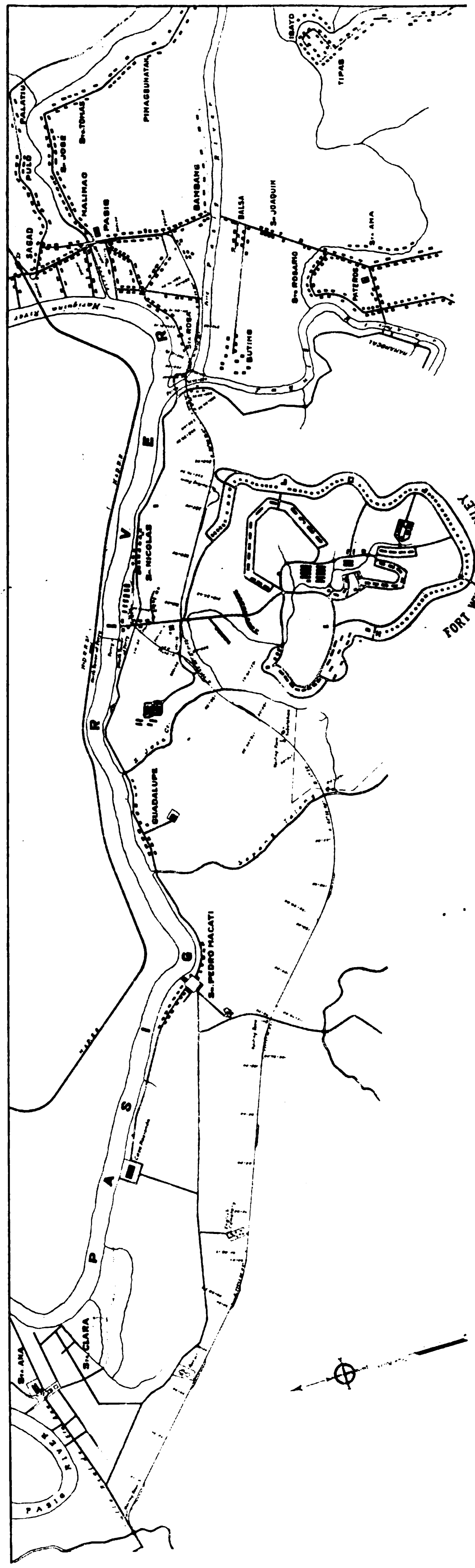
On September 15, the first regular train passed over the Philippine Railway line in Cebu connecting Talisay, a point about five miles south of Cebu, with Danao, the terminal of the first twenty mile section north of Cebu. Two trains are run over this section of the road each day and it is expected that as the steel is laid and additional rolling stock arrives that the operation of the road will be extended. This train is a mixed construction, freight and passenger train made up for the present to cover every condition until the arrival of more engines and other equipment. At the present time there are only two engines on the Cebu road available for all purposes. Four additional engines will be available in October and two more will be sent to Iloilo at the same time.

The operation of this section of the Cebu road was only made possible by the laying of over eight and one-half miles of steel during the month regardless of the inclemency of the weather and the continuous rains.

While the culvert construction has been rushed, over one-third may be said to be of a permanent class on the 25 miles referred to. Of the permanent buildings proposed six depots are under way at the present time.



ENGINE ROOM OF THE STEAM GENERATING PLANT OF THE MANILA ELECTRIC RAILROAD & LIGHT CO., EQUIPPED WITH BABCOCK & WILCOX BOILERS AND WESTINGHOUSE TURBO GENERATORS



FORT MCKINLEY—PASIG LINE OF THE MANILA SUBURBAN RAILWAY CO. AND EXTENSION TO THE MANILA ELECTRIC RAILWAY SYSTEM

PHILIPPINE SAWMILLS AND LUMBER

The following circular on "Philippine Sawmills, Lumber Market and Prices" prepared by Roland Gardner, manager of the Timber Testing Laboratory, has been issued by the Bureau of Forestry of the Philippines and contains some valuable data on the progress made in the development of the lumbering industry of the islands:

Manila is the principal lumber market of the Philippine Islands. Here are located five of the most important mills. Timber is being shipped to them from all parts of the Islands. Three of these mills are equipped with heavy band saws and other modern machinery. The other mills are equipped with vertical gang and circular saws. The combined maximum daily output of the five mills is about 90,000 board feet per day. One mill has a capacity of 30,000 board feet, two of 20,000 board feet and two of 10,000 board feet per day.

During the early operations of the mills in Manila, they had to contend with numerous difficulties. Filipino labor was unreliable; many of the hard woods were difficult to saw and it was impossible to secure a sufficient supply of logs from the provinces with regularity. Conditions have improved, however, during the past two years, and the mills are now operating in a very satisfactory manner. They now saw all commercial woods without difficulty and are depending more and more upon their own cuttings to supply logs to meet their requirements. With proper training, Filipinos are found to be apt in handling machinery. Two of the mills have recently been running at night to fill orders.

Some confusion exists in the market regarding the identity of a few of the leading commercial woods. This is especially true of Lauan. At least six different woods are now being marketed under that name. From the commercial standpoint this is not important, however, as all of these woods resemble the true Lauan (*Shorea contorta*) closely and are of about the same quality. There are several different kinds of wood being sold for Apitong, and occasionally Apitong is sold for Guijo. Lauan, Apiton, and Guijo are used to a larger extent than any other fifteen native woods.

Logs are bought and sold by the Spanish cubic foot. One Spanish cubic foot equals 0.765 of an English cubic foot. Lumber is bought and sold by the thousand English board feet.

In sawing the average-sized logs that are brought into the maket, between 5 and 6½ board feet are obtained from 1 Spanish cubic foot, but in the large-sized logs sometimes as high as 8 board feet are cut from 1 Spanish cubic foot.

Until quite recently it has been practically impossible to obtain well-seasoned lumber in the market. The mills have been accustomed to sawing to order, consequently lumber was seldom in the yards a sufficient length of time to become seasoned. There were no facilities for kiln drying lumber in large quantites. Two small kilns were erected several years ago, but they were of small capacity and have not been used extensively. One of the leading mills has recently installed a kiln of about 50,000 board feet capacity which is operating very satisfactorily. This kiln is capable of drying 100,000 board feet or more of native lumber per month, the amount depending upon the texture and thickness of the lumber. This concern is now using kiln-dried native lumber in its cabinet factory and is preparing to kiln dry Oregon Pine and California Redwood for use in its planing mill.

A considerable amount of imported lumber is still used in the Islands. Most of this is Oregon Pine and California Redwood. During the period from July 1, 1904, to June 30, 1905, 29,679,644 board feet of lumber and timber, and 9,261 pieces of timber (dimensions not known) were imported. During the same period, 139,148.77 cubic meters of native timber were cut. If this were all sawn into lumber, it would make about 40,000,000 board feet.

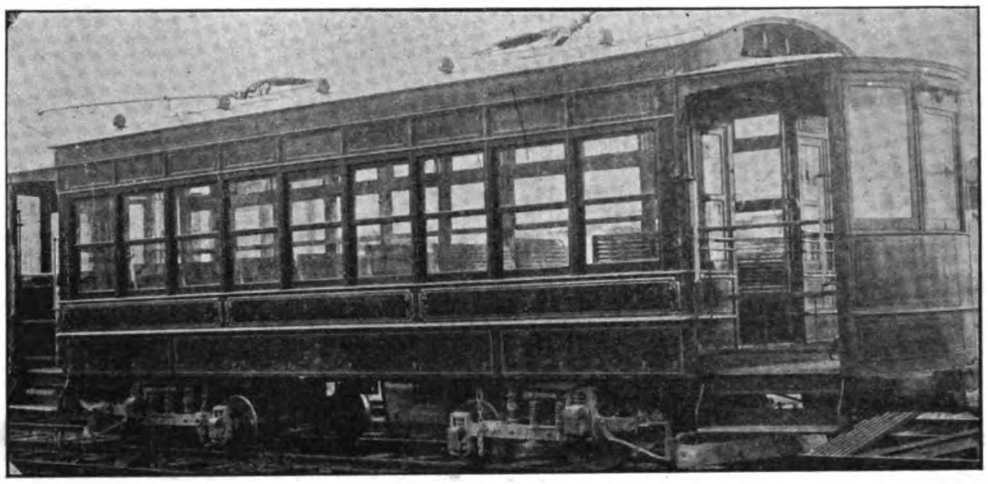
The price of logs fluctuates from day to day. The following table gives the Manila market prices on August 1, 1907:

Manila market prices

[Philippine currency]

Kind of wood	Logs per Spanish cubic foot.	Sawing per 1,000 English board feet.	Lumber per 1,000 English board feet.
Lauan	₱0.30-0.35	₱13.00-15.00	₱70.00- 90.00
Apitong	.35- .37	16.00-18.00	85.00-100.00
Guijo	.50- .65	16.00-18.00	98.00-140.00
Molave	.80- .90	21.00-23.00	215.00-300.00
Yacal	.65-1.00	21.00-23.00	160.00-200.00
Yellow Narra	.70- .80	16.00-23.00	225 00-275.00
Red Narra	.75-1.00	16.00-23.00	250.00-300.00
Tanguile or Balacbacan	.33- .45	13 00-18.00	95 00-120.00
Sacat	.40- .75	15.00-18.00	100 00-150.00
Ipil	.76- 85	21 00-23.00	180 00-225 00
Dungon	.80- 90	38 00-40.00	185 00-200 00
Supa	.65- .70	21 00-23.00	140 00-220 50
Balacat	.40	18 00	100 00
Macansin	.40- 75	15.00-18 00	110 00-150 00
Calantas	.65-1 20	13.00-15.00	180 00-200 00
Tindalo	.78-1 00	21 00-23 00	250 00-300 00
Amuguis	.40- .75	18 00-21.00	110 00-150 00
Acle	.85-1 20	16 00-23 00	280 00-300 00
Betis	.70-1 00	38.00-40.00	250 00-300 00
Bansalaguin	.45- 85	23 00	150 00-260 00
Palo Maria	.75- 80	18 00	140 00-160 00
Batitinan	.65- .75	21 00-23 00	150 00-280 00
Aranga	.50- 75	21 00-23.00	150.00-160 00
Banuyo	.55- .75	16 00-18 00	140 00-220 00
Malugay	.60- .65	16 00-23 00	140.00-130 00
Mayapis	.35	15.00	90 00

The Government stumpage charges in the provinces where large stands of timber are found range from $1 to $5, gold, per 1,000 board feet.



VESTIBULE CAR, MANILA ELECTRIC RAILROAD SYSTEM

Besides those in Manila, there are an increasing number of sawmills scattered through the provinces. Most of these are small with capacities ranging from 2,500 to 10,000 board feet per day.

The operations of one company in Negros Occidental are more extensive than those of any other company in the Islands. It is operating two sawmills on a tract of 69 square miles, 60 square miles of which are covered with an unusually heavy stand of timber, averaging about 32,000 board feet per acre of merchantable lumber. The smaller mill which has been in operation since 1902, has a capacity of 20,000 board feet per day but the daily cut is about 12,000 feet. The other mill which has recently been completed is a modern band mill of the best type with a capacity of 100,000 board feet per day and should saw at least 60,000 board feet per day when a mill crew has been trained. The trees known by the Visayan names of Balacbacan, Mangachupay, and Almon are being cut principally; the first two are sold in Cebu, Iloilo, and Manila as Balacbacan and Red Lauan. Almon has the market name of White Lauan. This company is able to sell Lauan cheaper than other lumbermen, getting about ₱60 per 1,000 board feet for it in Manila. The company logs in a modern manner with donkey engines for skidding and a narrow-gauge railroad for hauling the logs to the mills. The company not only sells lumber in the principal markets of the Islands—Cebu, Iloilo, and Manila—but also has begun exporting the best grades to the United States.

Another company has a mill located on the Island of Basilan, which is cutting about 6,000 board feet of lumber per day. This lumber is marketed in Zamboanga, Iloilo, and Cebu. The Zamboanga prices quoted by this company are as follows:

	Per 1,000 board feet.
Lumbayao	₱ 72.00
Guijo	80.00
Calantas	80.00
Yacal	140.00
Camagon	300.00
Tindalo	180.00
Ipil	180.00
Lauan	50.00
Narra	200.00

Planing, ₱7 extra per 1,000 board feet.

Another company, a branch of a Manila milling company, has recently installed in Mindoro a circular-saw mill with a capacity of 5,000 to 10,000 board feet per day. The lumber is shipped to Manila.

Near Baguio, Benguet, the summer capital of the Philippine Islands, there are three small mills sawing Benguet pine, which sells in Baguio and vicinity for ₱75 to ₱95 per 1,000 board feet. The capacity of these mills ranges from 2,500 to 6,500 board feet per day.

A small mill has recently been installed at Gattaran, Cagayan, which supplies Aparri and the towns in the Cagayan Valley with lumber. This mill charges ₱0.80 per English cubic foot for first group timber in the log, and ₱20 per 1,000 board feet for sawing.

About 2,500 board feet per day is the capacity of a mill which is cutting Agoho (*Casuarina equisetifolia* Forts.) almost exclusively at San Antonio, in the province of Tarlac. This is put on the market at Manila for ₱100 per 1,000 board feet.

A new company has recently received a timber concession in the Province of Tayabas and is now erecting a sawmill having a capacity of 15,000 board feet per day.

To supply the rapidly growing demand for timber for the new railroad in the Islands, preparations are now being made to install small mills at several places in the provinces.

The sawmills at present operating in the Philippine Islands, or nearly completed, are as follows:

Location.	Maximum daily output (board feet).	Principal markets.
Manila, P. I.	30,000	Manila.
Do	20,000	Do.
Do	20,000	Do.

Do.................	10,000	Do.
Do..................	10,000	Do.
Cadiz and Sagay, Negros Occidental.....	15,000	Manila, Cebu, Iloilo, and New York.
Do.................	60,000	Do.
Gattaran, Cagayan....	(a)	Local.
Felisen, Lepanto-Bontoc....................	1,500	Do.
Baguio, Benguet......	2,500	Do.
Do.................	3,500	Do.
Do.................	4,000	Do.
Bayombong, Nueva Vizcaya...............	(a)	Do.
San Antonio, Tarlac..	2,500	Manila.
Murcia, Tarlac.	(a)	Local.
Bolinao, Pangasinan.	(a)	Do.
Pinamalayan, Mindoro.	5,000	Manila.
Mamburao, Mindoro..	5,000	Local.
angarin, Mindoro...	10,000	Manila.
Puinayangan, Tayabas	15,000	Do.
Ragay Gulf, Ambos Camarines	(a)	Do.
Tacloban, Leyte......	3,000	Local.
Palompan, Leyte......	4,000	Cebu and local.
Dumaguete, Negros Oriental.	3,500	Local.
Iloilo, Iloilo...........	1,000	Iloilo.
Isabela, Basilan Island...............	6,000	Zamboanga.
Zamboanga, Moro....	(a)	Local.
Cotabato, Moro.......	(a)	United States Army.
Parang, Moro.........	6,000	Do.
Marahui, Moro........	(a)	Do.
Sibuguey Bay, Moro..	(a)	Local and Philippine railway.

(a) Small mill.

THE DEVELOPMENT OF FORMOSA

Evidence is not wanting that since the Japanese occupation of Formosa, or Taiwan, as it has been re-chirstened, steady progress has been made in the development of the resources of the island. Prior to the appearance of the Japanese on the scene, the aborigines caused the Chinese Government endless trouble, and, as the writer in the *Financial and Economic Annual* of Japan says, "it appears to have become second nature with the villagers to join in disturbances and set themselves in opposition to the Government authorities." Within two years after the Japanese had effected a landing on the island the military administration of the country had been superseded by the civil. Plans, we are told, were drawn up with respect to the subjugation of the aboriginal tribes and the policy regarding communications, finance, and monopoly, and were gradually carried into effect. The finances of the island became independent during 1905-6; for not only were the administrative expenditures met with the receipts of the Government of Taiwan without any pecuniary assistance from the Central Government, but it was also found feasible to defray out of the insular revenue the expenses of undertakings which it had been proposed to provide for by means of public loans; and, moreover, the account for the current financial year is expected to exceed by more than five million yen that for the preceding year, which was a little over twenty millions. The finances of Taiwan are, therefore, in very promising condition. Further, the coinage system of the island has now been placed on a purely gold basis; and the silver coins and silver notes which were hitherto current have almost disappeared from the market. The reform in the coinage system and the development of the productive industries of the island have increased the volume of its foreign trade. It was not deemed advisable to prohibit opium-smoking absolutely, but measures were adopted whereby the habit might be eradicated gradually. Opium was made a Government monopoly and sold at a fixed price, while the local authorities were required to undertake the duty of inspecting all opium dens and warning the people against the evils of opium-smoking. The habit has not yet been suppressed but it is believed that in course of time the consumption of opium in Formosa will cease as the result of the enactments of the authorities against the unlawful use of the drug. Salt, camphor, and tobacco are also Government monopolies and they appear to be in a prosperous condition. With regard to trade generally, an interesting account of what has been done to develop the country is given in the Annual referred to. It is recalled that Taiwan was brought under cultivation by immigrants from South China in the last days of the Ming dynasty. These settlers, as soon as the soil under cultivation became exhausted, removed to other parts and began afresh to cultivate; all that they needed they either produced themselves or awaited its supply from the Chinese mainland. There was among them no development in the direction of division of labor. Moreover, as the coasts of the island are exposed to high seas and gales in all seasons except between April and August, coasting trade was beset with such difficulties that there was absolutely no exchange of commodities between different parts of the island, and this state of things continued until the time of the Japanese acquisition of the island, when enormous differences were discovered in the prices of commodities between localities in the northern and southern portions of the island. Thereupon, the Government itself began to cut canals and open the main roads and commenced in 1899 the construction of a railway to run from one end to the other of the island. That railway is now complete from north to south with the exception of fifteen miles in the middle over which a light railway has for the present been laid. A great step forward has therefore been taken in the means of transportation of goods, and now marked differences in prices are no longer to be found between different parts of the island. The future of the island, it will be seen, is now assured, and the credit must be given to the able administrators who have managed to bring order out of chaos in a country which only a few years ago was overrun by warlike aborigines.—*Hongkong Telegraph.*

BEHRING STRAIT TUNNEL

Conflicting advices from Berlin announce that the Czar has approved the tunneling of Behring Strait together with the proposed scheme to build a railway connecting Kansk, Siberia, with the tunnel, to be contradicted later.

It is believed, however, that the general scheme will be approved subject to certain restrictions by the Russian government. The entire plans proposed covering a scheme to connect Alaska with the extreme north-eastern portion of Russian Asia by a tunnel under Behring Strait, which had fallen into the back ground during the war with Japan, was revived in the spring of 1906. M. Loicq de Lobel, who originated the project, laid the views of an American syndicate before a representative audience at the Naval and Military Club at St. Petersburg. It was shown, as the result of a close examination, that the strait is about 38½ miles in width and 167 ft. in depth, and that, as there are two islands in the strait, it would be possible to divide the tunnel into three sections each about 12½ miles in length, which corresponds with the length of the Simplon Tunnel (q. v.). Among the proposals of M. de Lobel were the following: The syndicate demands no guarantee of interest from the Russian Government, and this would mean a yearly saving to Russia of £2,000,000. The syndicate would give the Russian iron industry orders to the amount of £12,000,000. The syndicate pledges itself to employ only Russian engineers and workmen. The syndicate would make no experiments to colonize the adjacent regions with foreign settlers; on the contrary, it would assist the Russian Government to attract settlers to the Siberian district. The Government is to have the option of buying the railway after 30 years, when any lands acquired by the syndicate would be handed over. The syndicate also undertakes to construct a telegraph line which would be under Russian control, and to establish a Siberian Land Bank to encourage settlers. In return a land grant was demanded, giving the syndicate plots 7½ miles in length on either side of the railway to alternate with similar parcels held by the Government. According to a statement in the "Neue Freie Presse" the cost of the enterprise is estimated at £47,000,000 sterling; the Asiatic end of the line would be at Kansk, on the Trans-Siberian Railway, and the American portion would eventually link with the Canadian Pacific line.

NEW OJI PAPER MILLS

The representatives of the Oji Paper Co. of Tokio, Japan, says the New York *Commercial*, have been inspecting various electrical properties in the United States with the idea of installing a modern electrically equipped paper mill in Japan. As a result, orders have been placed in the United States for a complete electrical and mechanical equipment, amounting to more than $1,000,000.

The new Japanese paper mills, which will be operated by the electric drive, will include, in addition to the motor equipment of the paper making machinery, a new hydro electric plant with a fifteen mile transmission line and sub-station. At the power station there will be installed four water wheel-driven, three-phase units, generating current at a potential of 3,450 volts, at a frequency of 60 cycles. Current for exciting the revolving fields of these generators will be furnished by the usual twin exciting units, consisting of two 150-kilowatt generators, driven respectively by an induction motor and a small water wheel. Generator regulation will be effected by a Tirrill regulator.

Twelve water cooled, step-up transformers will be arranged in sets of three to raise the generator voltage for transmission. Each transformer will have a capacity of 1,050 kilowatts and the primary voltages will be arranged with connections for either 46,000 volts, 45,000 volts or 44,000 volts. An eight-panel switchboard will be installed in the main station.

At the sub-station near the mill, 12 step-down transformers will be employed to reduce the transmitting potential to 2,200 or 2,100 volts. The switch-board will be arranged to distribute power at the desired voltage directly to the motors.

In the paper mill five 750 horsepower, 2,000 volt induction motors will be used to drive the pulp grinders. These motors have an external resistance in the armature circuit and controllers to vary the speed. Each motor will have an extended shaft and will be so placed between two pulp grinders that both grinders can be driven directly without belting.

Four beater machines are to be driven each by a 350 horsepower induction motor operating at a potential of 2,000 volts. A fifth will be driven by a 200-horsepower induction motor and all will be operated on the rope drive system.

The Oji paper mill will be situated at Hokaido on the sea shore facing the Pacific.

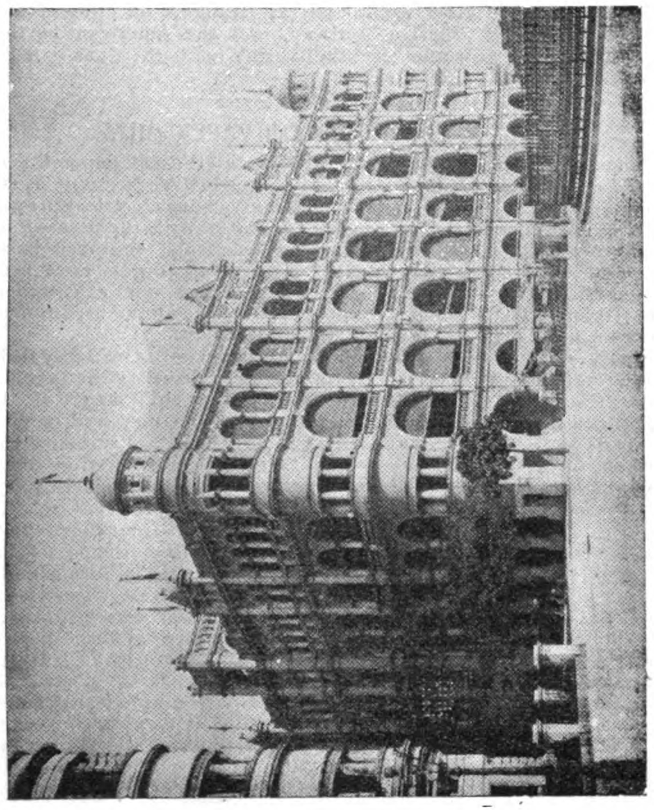
RAILWAY IN SOUTH CHINA

Viceroy Chang Chihtung submits a report on the construction of the railways in South China. He says that when China recovered the right of constructing the Canton-Hankow Railway from the American syndicate, he promised the British Consul that in the event of any foreign fund being required he would first negotiate with English capitalists. A similar agreement was concluded with regard to the railways in Hupeh and Hunan. This was an event of January last year. Subsequently, English, French, and Japanese bankers offered loans in connection with the railway works, but he refused all these proposals, because he did not want any foreign loan. Should he want assistance he will first consult the Hongkong-Shanghai Bank.

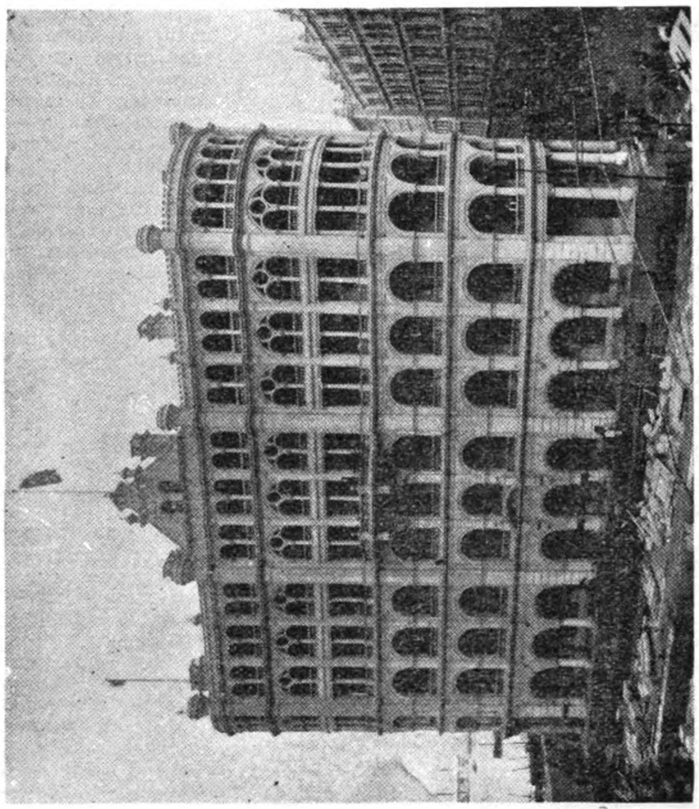
VICE-PRESIDENT LAFFIN RESIGNS

Mr. Richard T. Laffin, Vice-President and General Manager of the Manila Electric Railroad and Light Co., has resigned on account of his health and will return to the homeland to recuperate.

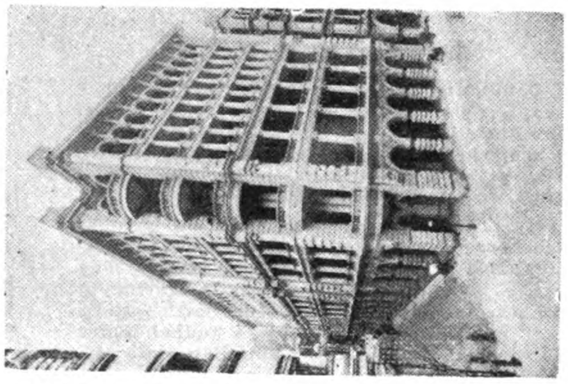
Mr. Charles B. Graves, manager of the Light & Power Department, succeeds Mr. Laffin.



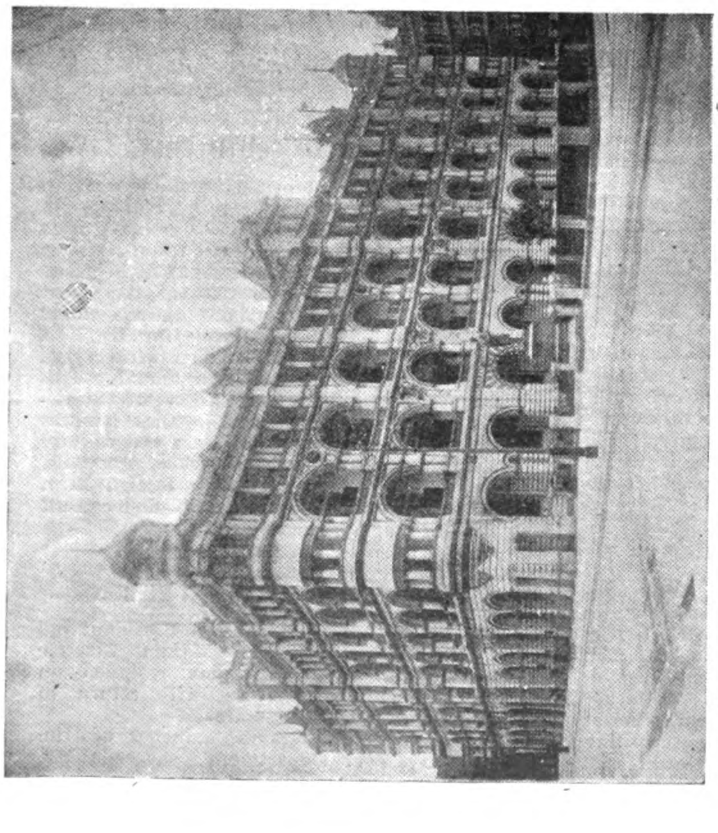
QUEEN'S BUILDINGS OF HONGKONG, FRONTING QUEEN VICTORIA'S STATUE AND THE ONE OF KING EDWARD UNVEILED BY THE DUKE OF CONNAUGHT LAST YEAR



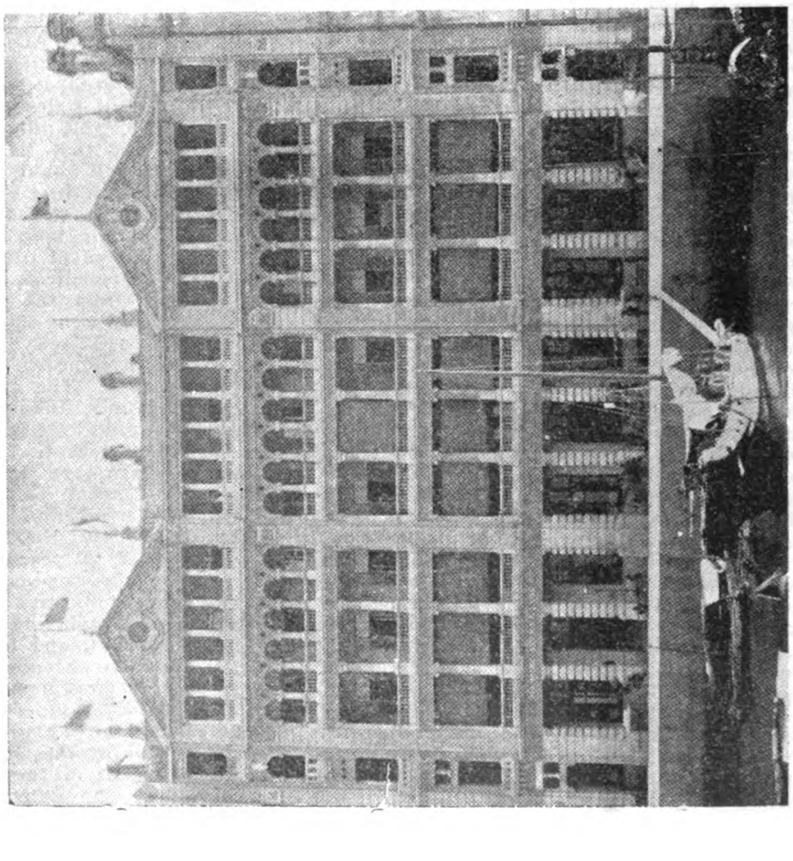
HOTEL MANSIONS, HONGKONG, ONE OF THE MOST MODERN BUILDINGS SITUATED ON THE PRAYA RECLAMATION AND FACING THE HARBOR



ROYAL BUILDINGS LOCATED IN THE ACTIVE BUSINESS SECTION OF HONGKONG



PRINCE'S BUILDING, HONGKONG, SITUATED ON THE SQUARE AND FACING THE PRINCE OF WALES' STATUE



KING'S BUILDING—A PROMINENT MODERN STRUCTURE ON THE PRAYA RECLAMATION AT HONGKONG

CAMPHOR PRODUCTION IN FORMOSA

Consul J. H. Arnold, of Tamsui, reports, as the result of an interview with the chief of the camphor bureau of the Formosan government, the following information regarding the production of camphor:

The manufacture of camphor in Formosa is confined to trees of upward of 50 years of age. The camphor bureau prohibits the cutting down of trees of a less age than 50 years. Although investigations as to the number of old trees in the island are not as yet completed, the number of these trees is far less than investigations a few years ago made it appear. Recent investigations warrant the statement that the supply of old trees will, at the present rate of cutting, become exhausted in less than fifty years. The old trees now standing are confined to the mountainous eastern half of the island, in regions for the most part still under control of savage tribes. The work of subjugating these tribes is difficult and one requiring much time. At the present rate of subjugation it will be many years before their territory can be safely exploited. Besides the subjugation of savage tribes, there are other difficulties to be overcome. These mountains are covered with dense jungles, and the work of building roads in order to render the camphor forests accessible to profitable exploitation is one requiring the expenditure of much labor and time.

CLIMATE AND OTHER DISADVANTAGES

Moreover, the sanitary conditions throughout much of this territory are such as to materially reduce the efficiency of labor employed therein. For instance, in the Daito prefecture the supply of trees is estimated at a quantity sufficient to produce 40,000,000 pounds of crude camphor. Owing to the lack of roads and to the presence of head-hunting tribes of savages, much of this material will have to lie untouched for years. Furthermore, the sanitary conditions in this district are such as to seriously cripple the labor employed there. A Japanese company took 1,000 coolies into this district a few years ago for the purpose of exploiting the camphor forests. Reports from this company state that 33 per cent of its labor is incapacitated through the contraction of fevers. Last year twelve of its men (Japanese) were decapitated by head-hunting savages.

At present the greater part of the camphor produced in the island comes from the trees in the Toen prefecture. There is reported here a scarcity of coolie labor to work the trees. With prosperous conditions obtaining throughout the civilized portions of the island, there is naturally a reluctance upon the part of the coolie labor to risk attacks by savages in engaging in labor in the camphor forests at a wage equivalent to 40 cents United States currency per day, when they are enabled to secure one-half this amount in the more peaceful pursuits on the lowlands. Thus the difficulties to be overcome in order to exploit the remaining camphor forests of the island are such as to render the cost of securing the product a constantly increasing quantity.

The camphor bureau expects to produce 5,000,000 kin (6,667,000 pounds) of crude camphor, and about one-half that amount of camphor oil during the present year. They expect to produce a similar quantity during each year during the next few years with probabilities of a slight increase thereafter. It is said that Formosa at present produces about 75 per cent of the world's supply of camphor, the remaining 25 per cent being produced by Japan and China.

AFFORESTATION

Until Japan took possession of this island practically nothing was done to replace the trees cut down except what was done by nature itself. The camphor tree grows readily from seed and requires but little attention. Since the organization of the camphor monopoly in 1899 the Formosan government adopted a system of afforestation which, it is hoped, will result in guaranteeing to the island a constant supply of raw materials. The camphor bureau provides three methods of afforestation: Government replanting; replanting by schools, villages, and agricultural societies, and replanting by private concerns. Up to the present year the securing of seeds was difficult.

While the Formosan trees are good seed producers, yet, owing to the fact that the seed ripens quickly, and if not picked within two days after it blows away, much difficulty has been experienced in collecting seeds, as the trees were not afforded the proper protection. Owing to the large exportations of Japanese seeds to foreign countries, the Formosan authorities could not depend upon Japan for a supply. The camphor bureau now designates and registers certain of the seed-producing trees and prohibits their being cut down; in this manner a plentiful supply of seeds is being provided for. Agricultural experiment stations are maintained throughout the island, and to these is assigned the task of planting the seeds and providing nurseries for the young plants. The young plants are taken from these nurseries and replanted in districts set aside for that purpose. It required several years to secure sufficient trained cooly labor to attend to the setting out of these trees.

FUTURE PLANTS—TWO VARIETIES OF TREES

Since 1900 the government has planted about 3,000,000 young trees and has arranged to add another 500,000 to this number during the present year. It is expected to be able to plant 750,000 each year after the present year. Trees planted in the mountainous districts are set out with the idea of prohibiting their utilization for camphor production for a period of forty or fifty years. Those which are planted on the lowlands are set close together in rows with the idea in view of utilizing their leaves, after they have attained a ten-years' growth, in the manufacture of the crude camphor. The lowlands planted in camphor are designated as camphor gardens rather than as camphor forests. Beyond an occasional clearing of the ground about the young tree it requires no attention in the way of cultivation or irrigation. There are many varieties of worms which tend to attack the young plants, but the government experts report that but 6 trees out of each 1,000 planted die.

There are two varieties of trees—the camphor-producing tree and the camphor-oil producing tree. The former is the more valuable. It requires an expert to detect the difference between these two varieties in the standing trees. The camphor oil produces but 0.49 of its weight in camphor. The government nurseries furnish young plants to the schools, villages, and agricultural societies desirous of planting the camphor trees, and many such have availed themselves of this offer. Private concerns in Formosa desirous of engaging in the raising of camphor are also supplied by the government nurseries with the young plants. Hence it is quite evident that afforestation of camphor in Formosa is proceeding at a good pace. Reports from Japan estimate the number of trees planted there during the past ten years at 8,000,000. Reports from China state that, while the Chinese are interesting themselves in the question of afforestation, up to the present nothing has been done toward planting of new trees.

PROCESSES OF MANUFACTURE

Crude camphor is manufactured from the wood by the simple process of distillation. Chips of camphor wood are placed in a clay-plastered retort which rests upon a circular wooden rim of a water pan. This water pan sets over a fire. Connected with the retort at some distance away are the crystallization and cooling boxes in which the camphor vapor passes, is cooled, and crystallized. (For a detailed description of this process see Davidson's "Formosa, Past and Present.") The camphor thus crystallized is dark in appearance and is known as crude camphor. These stills or stoves are erected as close to the supply of the raw material as is possible; hence throughout the camphor-producing districts there are found many of these stoves. The products of the different stoves are not uniform in quality. The monopoly bureau operates in Taihoku city a camphor factory where the products of the various stoves are graded and by redistillation rendered uniform. This factory produces two grades of camphor, known as "B" and "BB" grades. The "B" grade, that which is exported to the American market, is rated crude camphor, containing a higher percentage of oil and water than the "BB" grade, which more nearly approaches a refined camphor. The "BB" grade differs from properly refined camphor in that it is not clarified. Owing to the fact that the monopoly bureau's plant was partially destroyed by fire a few months ago it has been impossible to produce the "BB" grade, and consumers are obliged to take the "B" grade products until the plant is repaired. The crude camphor which is not exported to foreign markets is sent, along with the camphor oil, to the Kobe refineries, where refining is completed.

Although the "BB' grade is rated by the American customs examiners as a refined camphor, yet the camphor bureau in Formosa terms it crude camphor, for the reason that a clarifying process is necessary to the completion of the refining.

MONOPOLY IN SALES—AN ARTIFICIAL SUBSTITUTE

It might be said that Formosa, in conjunction with Japan, holds a monopoly upon the production and sale of the world's supply of camphor. Although the customs returns for China show that there were exported from that country during the year 1906 about 12,000 piculs (1,600,000 pounds) of crude camphor, yet the Formosan industry fears no competition from that source. Reports of planting camphor in Ceylon, Florida, Texas, and Mexico do not disturb the prospects of the Formosan product in the eyes of the authorities here. These contend that the more camphor trees there are planted the less likelihood there will be of the successful production of an artificial substitute. Artificially produced camphor seems to be a reality, but it is contended that its cost of production is too great to warrant its being made to enter into competition with the natural camphor.

The bulk of the world's camphor production goes into the manufacture of celluloid. It is estimated that about 70 per cent of all camphor produced is utilized in the manufacture of celluloid. Owing to the difficulties which many manufacturers of celluloid have experienced in securing enough camphor to fill their orders these have often been obliged to purchase supplies through brokers. The Formosan government now declares its intention of remedying this state of affairs to some extent, at least. The camphor bureau has instructed its selling agents to supply first and foremost its customers among the celluloid manufacturers. A list is to be made up setting forth the demands of the various celluloid mills, basing these demands upon the capacities of the respective mills. In the future these manufacturers will receive their supplies upon a basis of their actual demands.

FUTURE PLANS OF JAPANESE

As Japanese capital is already engaging in the erection of celluloid factories in Japan it is only to be expected that the Japanese manufacturer will also come in for his pro rata share of raw materials. The monopoly bureau disposes of its camphor through a selling agent. Each year a contract is made with an agent for the disposition of the products of the bureau. At present a British firm [name on file at Bureau of Manufactures] holds the selling agency. It is rumored that with the expiration of the present fiscal year in March, 1908, the selling agency will pass into Japanese hands. While this rumor sounds plausible, naturally the authorities have nothing to say in regard to it.

The monopoly bureau regulates the prices to be made to the foreign purchasers and designates the amounts to be sold to certain classes of purchasers. The present price of the "B" grade camphor is $69.50 United States gold a picul (133⅓ pounds), f. o. b. New York. This price is considerably higher than that which obtained five years ago. As for further advances, it appears that there will be no advances in the near future. I dare say the fear of encouraging the production of an artificial camphor will in a great measure retard tendencies to future advancements in the prices of the Formosan product

TRADE OF THE UNITED STATES WITH ITS NON-CONTIGUOUS TERRITORIES 1903-1907

Trade of the United States with its non-contiguous territories will aggregate nearly 150 million dollars in the fiscal year which ends with the present month, against less than 100 millions in 1903, the first year for which complete figures of trade with all the non-contiguous territories are available. Prior to 1903 no official figures of trade with Alaska were reported to the Bureau of Statistics, and therefore a complete picture of trade with the entire non-contiguous area now under the flag of the United States can only be given for the term 1903-1907. During that period the shipments from the United States to its non-contiguous territories have increased about 90 per cent and the receipts of merchandise from them have increased about 25 per cent. Comparing the ten months of the present fiscal year for which figures are now available with the corresponding period of 1903, the first year for which complete figures can be had, the growth in shipments to the entire non-contiguous territory of the United States has been from $29,529,068 to $55,149,243, an increase of 86.76 per cent, while shipments to foreign countries were increasing but 31.4 per cent. During the same period the merchandise sent from the non-contiguous territories to the United States has increased from $48,-250,099 to $59,693,323, an increase of 23.7 per cent, while merchandise received from foreign countries was increasing 38.2 per cent.

The growth in shipments from the United States to its non-contiguous territories has been more rapid, measured in values, than that in shipments from those territories to the United States, this fact being due, in the shipments of the islands, to increased requirements for railway construction, plantation development, etc., and in the shipments from the islands to the recent fall in the price of sugar, a staple article of shipment from Hawaii and Porto Rico to continental United States. The value of shipments from Hawaii to the United States was in the ten months of 1905 nearly 25 million dollars and in the corresponding period of 1907 but 21½ millions, this decrease being due to a reduction in the price of sugar, the chief article sent from that territory to the United States, rather than to any decrease in quantity. In the ten months of 1905 the 580,940,402 pounds of sugar shipped from Hawaii to the United, States were valued at $24,115,252, while the 605,431,431 pounds of sugar shipped in the same period of 1907 were valued at but $20,-282,387, an actual increase of 24 million pounds, but a decrease of nearly 4 million dollars in value. In the case of Porto Rico, the shipments of sugar to the United States amounted in the ten months of 1905 to 199,867,093 pounds, valued at $8,870,921, and in the corresponding months of 1907 amounted to $298,918,649 pounds, valued at $10,746,714. The average price per pound of the sugar shipped from Hawaii to the United States in the ten months of 1905 was 4.15 cents and in 1907 3.35 cents; and of that shipped from Porto Rico to the United States in 1905, 4.444 cents, and in 1907 3.59 cents.

Porto Rico shows a larger total in the trade account with the United States than any other of the non-contiguous territories. The shipments to Porto Rico in the ten months ending with April, 1907, amounted to 21 million dollars, against 10 millions in the same months of 1903, having thus more than doubled meantime; and the shipments from that island to the United States amounted in the ten months of 1907 to a little less than 17 million dollars, against less than 9 millions in the same months of 1903, having thus nearly doubled during that period. To the Philippine Islands the shipments amounted to slightly less than 7½ million dollars in the ten months ending with March, 1907, against 3¼ millions in the same months of 1903, having thus considerably more than doubled meantime, while the shipments from those islands to the United States in the ten months of 1907 were 9¾ millions in value, against 10¾ millions in the same months of 1903. To Hawaii the shipments during the ten months of 1907 were valued at 11¾ million dollars, against 9 millions in the same months of 1903, and the shipments from that territory to the United States amounted to 21½ million dollars in the ten months of 1907, against 18½ millions in the same months of 1903. To Alaska the shipments aggregated practically 15 million dollars in value during the ten months of 1907, against 7 millions in the same months of 1903, and the shipments from that territory to the United States in the ten months of 1907 amounted to 11¾ millions, against a little over 10 millions in the corresponding months of 1903.

Trade with Porto Rico shows a larger total and a more rapid growth than that with any other of the non-contiguous territories of the United States. Lying at a comparatively short distance from the great consuming centers of the country and producing a class of articles not produced in continental United States in sufficient quantities to supply home demand, its growth in production and consequent consuming power has, under the development resulting from investments of capital from the United States, been very rapid. This increase in production has proportionately increased consuming power, and in addition to this the investment of capital from the United States in railways, sugar plantations, tobacco factories, and other manufacturing establishments has increased its demand upon the manufactores of the United States for the machinery and supplies required in that development. The shipments of iron and steel manufactures from the United States to Porto Rico in the ten months ending with April, 1907, amounted to $3,352,252, against $888,360 in the same months of 1904. The total shipments of cotton manufactures to the islands in the ten months of 1907 amounted to $2,945,258, against $1,415,784 in the corresponding months of 1904. The value of breadstuffs shipped to the island in the ten months of 1907 was $1,329,959, against $978,291 in the same months of 1904. Cars and carriages shipped to Porto Rico in the ten months of 1907 amounted to $507,278, against $110,806 in the same months of 1904; leather and manufactures thereof in the ten months of 1907 to $687,287, against $236,425 in the same months of 1904; meat and dairy products, $1,959,055 in the ten months of 1907 against $1,031,569 in the same months of 1904; rice, $3,430,300 in the ten months of 1907, against $1,970,479 in the same months of 1904, and the wood and manufactures thereof, $1,131,694 in the ten months of 1907, against $359,604 in the same months of 1904, these figures relating to domestic merchandise only. The shipments from Porto Rico to continental United States are chiefly sugar, tobacco and fruits, those of sugar having amounted to $10,746,714 in the ten months of 1907; against $5,854,708 in the corresponding months of 1904; tobacco and manufactures thereof, $4,-645,701 in the ten months of 1907, against $1,-338,185 in the same months of 1904, and fruits, $665,838 in the ten months of 1907, against $400,452 in the corresponding months of 1904.

To the Philippine Islands the shipments have grown from $3,326,240 in ten months of 1903 to $7,411,470 in the same months of 1907, an increase of 123 per cent. Cotton manufactures sent to the islands, which in the ten months of 1903 were $295,133, were in the same months of 1907 $1,536,508 in value; iron and steel manufactures, which in the ten months of 1903 amounted to but $553,850, were in the same period of 1907, $1,582,177. The value of mineral oils shipped to the islands from the United States increased from $275,981 in the ten months of 1903 to $585,232 in the same months of 1907, and breadstuffs from $209,736 in the ten months of 1903 to $486,576 in the corresponding months of 1907. Merchandise sent from the Philippine Islands to the United States consists chiefly of manila hemp, of which the total value in the ten months ending with April, 1907, was $9,049,984 out of a grand total of $9,630,975, the value of all other articles amounting to but $580,991 of which $374,092, was sugar, while in the same months of 1904 the value of the hemp sent from those islands to the United States was $9,499,422, and that of all other articles $1,012,152, of which $884,-160 was sugar.

In the trade with Hawaii the shipments from the United States include merchandise of all kinds, the more important groups having been in the ten months ending with April, 1907, breadstuffs, $1,153,846; cotton manufactures, $1,295,569; iron and steel manufactures, $1,-468,651; mineral oil, $830,451; and meat and dairy products, $525,344. The principal article in the shipments from Hawaii to the United States is sugar, which in the ten months of 1907, amounted in value to $20,282,387, while the value of all other merchandise shipped to the United States was $1,184,886.

In the trade with Alaska the shipments from the United States are composed of miscellaneous merchandise, more especially iron and steel manufactures, which in the ten months of 1907 amounted to $3,094,815; meat and dairy products, $1,770,995; wood and manufactures thereof, $728,687; woolen goods, chiefly wearing apparel, $739,184; spirits, wines and liquors, $659,679; vegetables $597,751; fruits, $430,986; cotton manufactures, $480,107; and breadstuffs, $578,494. The shipments from Alaska to the United States consist chiefly of canned salmon, of which the total for the ten months of 1907 was $8,423,146; other fish, $607,431; copper ore, $1,104,469; and fur and fur skins $568,931, while domestic gold from the mines of Alaska shipped to the United States during the same period amounted to $17,727,727 and silver to 13,738. The shipments of domestic gold from Alaska (including in this term only that from mines within Alaska and not including that from adjacent British territory shipped by way of Alaska) amounted in the ten months of 1904 to $5,895,091, and in the same months of 1907, as above indicated, to $17,727,-727 having thus trebled in value in the three-year period from 1904 to 1907, and being in the ten months of 1907 two and a half times the sum paid for Alaska.

SEATTLE-ORIENTAL RUN

Two new steamships have been placed on the Seattle-Oriental run to be run in conjunction with the Boston Steamship Company's fleet. The *Kumeric* and *Suveric*, the two largest steamships of the Wier fleet, will sail regularly from Seattle for Japan and China, going through to Manila, beginning this month.

The following announcement was made recently: The *Kumeric* and *Suveric* will be on the Orient run soon. The *Kumeric* will sail from this port during the month of August and will be followed in October by the *Suveric*, which will make another trip to North China ports before assuming the new service.

"It is our intention to run these vessels in conjunction with the Boston Steamship Company's fleet, the sailings being arranged so as to come in between the sailings of their fleet. Both of these vessels are new and represent the highest grade of their class. With the addition of these two vessels, the company will be able to give shippers a three-week service between Seattle and the Orient. As with the Boston Steamship Company's fleet, both of these vessels will call regularly at Manila, Hongkong, Shanghai, Kobe and Yokohama."

These two vessels, with the exception of the *Minnesota*, are of the largest class of vessels to engage in the Oriental trade, and have a cargo-carrying capacity of 17,000 measurement tons, or 12,000 tons dead weight. Both ships are practically new, the *Kumeric*, which will be the first to leave Seattle on the new schedule, is at present making her maiden voyage and is bringing 1,000 Portuguese immigrants to Honolulu, from which port she will come to the navy yard, Puget sound, for which place she has a cargo of 8,000 tons of Cardiff coal consigned to the government. The vessel was built in Glasgow, in 1906, by Russell & Co. The dimensions are 460 feet in length, 55 feet in breadth and 29 feet depth of hold, with a net tonnage of 3,980 tons.

The *Suveric* is a sister ship of the *Kumeric*, and is well known at Seattle, as is Capt. Shotten, her master, having loaded cargo there for the North China trade. The vessel was built last year and has practically the same dimensions as the *Kumeric*, being 460 feet in length, 55.1 feet in breadth and 28.6 feet depth of hold.

LESSONS IN ESPERANTO

LESSON III

LA MALBELA ANASIDO (THE UGLY DUCKLING)

Fabelo de Hans Christian Andersen.

Ia|n bel|a|n tag|o|n anas|in|o en la kamp|ar|o sid|is sur si|a nest|o, el|kov|ant|e si|a|j|n ov|o|j|n. Tiu okup|o, tamen, ŝi|n preskaŭ enu|ig|is, ĉar apenaŭ amik|in|o far|is al ŝi vizit|o|n. La ali|a|j ge|anas|o|j naĝ|ad|is sur la lag|et|o, tiom okup|at|a|j pri si|a|j propr|a|j afer|o|j, ke ili ne dezir|is babil|ad|i.

Fin|e unu ov|o ek|krev|is, jen ali|a, post|e tri|a, kaj tiel plu. "Krik" far|is unu, "krik, krik," la du|a, ĝis dek|du ov|o|j est|is fend|iĝ|int|a|j, kaj la mal|-grand|a|j lanug|aĵo|j |rigard|is el la mal|-larĝ|a nest|o kvazaŭ tra fenestr|o.

"Kvak, kvak," dir|is la patr|in|o, kiam la anas|id|o|j, ĉirkaŭ|rigard|ant|e mir|-eg|e, kiel ebl|e plej rapid|e el|ven|is. "Kiel grand|a est|as la mond|o!" dir|is la id|et|o|j.

"Ĉu vi kred|as, ke tio ĉi est|as la tut|a ter|o?" dir|is la patr|in|o; "Ho ne, ĝi etend|iĝ|as ĝis long|e preter la ĝarden|o. Sed ĉu vi ĉiu|j est|as kun|e? Ho ne!" al|don|is la anas|in|o, "ne ĉiu|j jam est|as el|kov|it|a|j; la plej grand|a ov|o rest|as ankoraŭ ne|fend|iĝ|int|a, Kiom da temp|o ti|o daŭr|os? Ver|e, mi kcmenc|as el|lac|iĝ|i." Tamen ŝi de|nov|e sid|-iĝ|is sur la nest|o|n.

EXPLANATORY NOTES

IAN BELAN TAGON. The accusative is used here because it stands for JE LA BELA TAGO, *on a certain fine day.* Likewise we should say TIUN ĈI MATENON for *this morning,* or LA 3AN DE MAJO for *the 3rd of May.*

SIA NESTO, SIAJN OVOJN. The reflexive-possessive pronoun SIA always refers to the subject of its clause, in this instance, ANASINO

Note also that the adjective has always to agree with its noun as regards case and number.

The same is the case with the impersonal pronoun SI, which corresponds to the Latin "se," and means *himself, herself, itself, oneself.* or *themselves* according to the subject of the verb. Thus we have ĜI DIRIS AL SI (it said to itself); ŜI AMAS SIN (she loves herself). Similarly the possessive pronoun SIA means *his, her, its, one's* or *their* according to circumstances. LI SERĈAS SIAN ĈAPON (*He is looking for his cap*). ILI ALVOKIS SIAN PATRON (*They called to their father*).

On the other hand, we say TIU OKUPO ŜIN ENUIGIS and AMIKINO FARIS AL ŜI VIZITON because ŜIN and ŜI do not refer to the subject of the sentances OKUPO and AMIKINO, but to ANASINO.

The advantage of an inflected accusative case, which renders the sense of a sentence quite independent from the order of the words, may be seen from the latter example.

Thus instead of APENAŬ AMIKINO FARIS AL ŜI VIZITON, we may say, e.g.:

VIZITON AL ŜI FARIS APENAU AMIKINO.

AL ŜI AMIKINO VIZITON APENAU FARIS.

FARIS AL ŜI APENAU AMIKINO VIZITON.

AMIKINO VIZITON FARIS AL ŜI APENAŬ.

In whatever order the component parts of the sentence may be put, the sense is not altered in any way.

Of great importance is the use of the suffixes IG and IĜ. These can be attached to almost any stem. Thus we have ENUIGI *to make wearied,* LACIĜI *to become tired,* FENDI *to split* (transitive) forms FENDIĜI *to split, (become split,* intrans.)

The prefix EK denotes a beginning, thus EKKREVAS *begins to burst.* .

EL (out of) used as a prefix gives the meaning of completion, ELKOVI *to hatch out,* ELLACIĜI *to become tired out.*

The word ARO means a collection, KAMPARO *a collection of fields, the country,* IDARO *a collection of young ones, a brood.*

The prefix GE unites the genders, GEANASOJ *ducks and drakes.*

KIEL EBLE PLEJ RAPIDE (as possible quickest). This is the Esperanto way of saying *as quickly as possible.* Of course it would not be wrong to say TIEL RAPIDE, KIEL EBLE.

ĈU VI KREDAS? *Do you believe?*

All questions, unless they begin with one of the interrogatives, KIO *what,* KIU *who, which,* KIES *whose,* KIE *where,* KIEL *how,* KIAM *when,* KIAL *why,* KIA *of what kind,* or KIOM *how much,* are headed by the conjunction ĈU, *whether.* This makes the sense of any Esperanto sentence independent of the order of the words, and avoids ambiguity, which sometimes occurs in national languages. KUNE, *together.* Note that prepositions may take the adverbial ending E.

ŜI SIDIĜIS SUR LA NESTON. The accusative is required because there is direction, *she sat down on the nest,* whereas '*she sat (was sitting) on the nest*" ought to be rendered by ŜI SIDIS SUR LA NESTO.

OBL. ON. OP.

The cardinal numbers never change their forms.

1	UNU	4	KVAR	7	SEP	10	DEK
2	DU	5	KVIN	8	OK	100	CENT
3	TRI	6	SES	9	NAU	1000	MIL

The tens and hundreds are formed by simple junction of the numerals: 533=KVIN'CENT TRI'DEK TRI.

Ordinals are formed by adding the adjectival A to the cardinals—UNU'A, *first.* DU'A, *second.* TRI'A, *third.*

Multiples are formed by OBL: KVAR'OBL'A, *fourfold.* DEK'OBL'A, *tenfold.* Fractionals by ON': DU'ON'O, *a half.* TRI KVAR'ON'O'J, *three quarters.*

By adding OP collective numerals are formed: OK'OP'E, *by eights.* DEK'DU'OP'E, *by dozens.*

To form distributives one uses the preposition PO: PO SES, *at the rate of six.* PO NAŬ'DEK, *at the rate of ninety.* Firstly, secondly, thirdly are rendered by the adverbial form of the ordinals: UNU'E, DU'E, TRI'E, &c.

THE DEVELOPMENT OF KIAOCHAO

There has just been laid before the Reichstag the official statement dealing with the development of the Kiaochao Protectorate during the twelve months ending with October 1, 1906. The statement is brought nearly up to date by supplements relating to certain specially interesting events, which occurred before the middle of last month. The expectations, which were formed of the development of the colony, have been fulfilled in every branch of commercial and general activity The revenue of the colony rose from £50,059 to £68,524, or an increase of about thirty-seven per cent. Of the revenue the sum of £11,843 represents the takings from January to June, 1906, under the new German-Chinese customs agreement; thus, deducting this sum received from a new source of revenue, there remains an increase of fifteen per cent. According to the Chinese Customs statistics the value of the trade of Tsingtao rose from $32,400,000 to $39,400,000. Under the new Customs Agreement referred to, these figures include, since January 1, 1906, the goods arriving by sea for use in the colony, and, as such, until that time duty-free.

The shipping of the port of Tsingtao increased by more than 56,000 registered tons, and amounted to 476,646 tons. A specially characteristic feature of the economic development of the colony as also of the far-spreading Hinterland, upon which the colony is exercising an influence which is increasing at a rapid rate, is seen in the traffic of the Shantung Railway. The passenger and goods traffic alike of that railway have grown in a remarkable manner; thus, the number of passengers carried was 811,285, as compared with 780,228, and the freight amounted to 377,649 tons as compared with 279,740 during the previous official year. Coal forms by far the bulk of the freight, and 13,716 truck-loads were conveyed. As such great progress was made by the Shantung Mining Company in 1906 the Shantung Railway will be called upon soon to carry larger quantities of coal. In less degree the freights of agricultural produce and general goods show an increase of freight.

Although the economic development of Kiaochao is regarded as having been thoroughly satisfactory, yet the report points out that the progress made would have been considerably greater if trade all over the Far East had not been disturbed in certain ways, especially by the extremely high rate of the Mexican dollar, which is the usual coin of currency along the whole coast line. Still, the report acknowledges that it is out of the question for Kiaochao to have its own particular currency. However, after negotiations lasting several years between the Naval authorities and all other Imperial authorities, and the German-Asian Bank, the bank mentioned received from the Chancellor of the Empire on June 8, 1906, the concession for fifteen years to issue banknotes through its branches at Kiaochao and in China.—*London Globe.*

OBITUARY

Mr. Sam H. Shorrock of the firm of Messrs. Shorrock & Co. of Shanghai died very suddenly at his home there on August 31. The deceased was widely known in the Far East and his passing out was a severe shock to the community.

JAPAN'S PROPOSED RAILWAY DEVELOPMENT

At a recent cabinet meeting held at Tokio it was decided to expend about 150,000,000 yen in railroad development in Japan during the next five years. The estimates approved are as follows:

Construction of several secondary lines, *yen* 83,000,000; 900 locomotives, *yen* 22,500,000; 19,000 freight cars, *yen* 19,000,000; 1,000 passenger carriages, *yen* 10,000,000; reconstruction and extending of 30 stations, *yen* 15,000,000; and five steamers needed in conjunction with the railways, *yen* 1,500,000.

Mines, Mining and Minerals in the Philippine Islands

(Edited by the Bureau of Science, Manila)

SULPHUR IN THE PHILIPPINES

Tacloban and Burauen are connected by a wagon road about twenty-six miles long which passes through the towns of Palo, Tanauan and Dagami. The portion of the road between Tacloban and Tanauan, a distance of about nine miles, is in excellent condition and easily passable in any sort of weather. Broken bridges between Tanauan and Dagami make the second portion of the road, which is about eleven miles long and otherwise in very good condition, somewhat more difficult for a wagon or cart to travel. The last portion of the road, between Damagi and Burauen, is by far the worst, being almost impassable in a cart in the rainy season on account of the mud. From Burauen to the solfataras is a distance of about six miles. The two places are connected by a mountain trail which, although good the greater part of the way, is in places so rough, steep, and overgrown that it would have to be repaired before it became passable to pack animals.

Going south from Burauen, Leyte, the Daguitan river, about 200 feet wide, is crossed at the outskirts of the town. The trail is in good condition and remains fairly level up to the crossing of the Marabang, about two miles beyond Burauen. Beyond the crossing of the Marabang the trail becomes steeper and more difficult but yet passable with a horse, at least so far as the barrio of Jibonaoan. This is a small barrio of about a dozen families all of whom are engaged in the cultivation and the stripping of hemp, the main industry of this part of the province. Beyond Jibonaoan, still following a southerly direction, the winding trails lead through a series of hemp plantations constantly ascending towards the summit of Mount Kansiboi, the elevation of which is about 1020 feet above sea level. Nearing the summit, which is about two and a half miles south of the barrio of Jibonaoan, the trail becomes rough and steep, cultivation gradually ceases and is succeeded by a natural forest of fine tall hardwood trees. About half a mile beyond the Kansiboi is a narrow cut in the mountains aptly called La Puerta, the approximate elevation of which above the sea level is 1310 feet.

The descent of the southern slope of the ridge is rather sharp and made difficult by the thickly intertwining underbrush. The earliest indication of solfataric activity is observed in crossing the Mainit river about a third of a mile south of La Puerta. This stream is only about fifteen feet wide and remarkably clear, but so scalding hot that it cannot be waded. The banks of the stream are barren of vegetation and are covered with white kaolinized igneous boulders between and in the interstices of which, are small quantities of native sulphur.

The source of the heat and sulphur carried by the Mainit lies in the solfatara which is only about a quarter of a mile east of the river crossing and about a hundred feet above it. The To-od Grande, as the solfatara is called, is a large barren space about 800 feet wide. Its surface consists of white kaolin resulting from the corrosion by acid fumes of some igneous rock, probably andesite. A portion of the superficial layer has encrusted upon it a greenish yellow mixture of sulphur and clay deposited from the sulphurous gases which still emanate from numerous fissures and crater-like openings in the surface of this barren area.

These openings are of two kinds: dry vents from which gases escape into the atmosphere without the association of water, and wet holes which are like large earthen caldrons containing either boiling mud or water. Extending some distance around the orifices of the dry vents there is usually formed an incrustation of beautiful yellow crystals of pure sulphur. The bulk of the sulphur, however, lies in the impure clayey mixture distributed over the surface in irregular patches. An average sample of the crust to a depth of about nine inches yielded on analysis 66.1 % of free sulphur.

The To-od Pequeño is a continuation of the same solfatara, situated to the south of and at a somewhat lower level than the To-od Grande. It exhibits the same phenomena as the upper solfatara but is much smaller in area. In one portion of the To-od Pequeño is a lage cave from the bottom of which issue steam, sulphurous, chlorine and other gases, corroding the sides and roof of the vault and giving to it a varicolored appearance due to the secondary minerals formed. About half a mile southeast of the To-od and separated from it by a high ridge of andesite, is another solfatara called the Pangujaan. It is situated on the southern slope of a slide about 125 feet high and about 300 feet wide, from the sides of which four or five larger and several more smaller vents give off steam and sulphurous gases in a continuous flow. As at the To-od these vents are usually ringed with a sublimate of sulphur, close approach to which, however, is very difficult on account of the precipitousness of the slide as well as on account of the heat and the obnoxious gases given off. Occasionally the channel leading to one of these vents becomes closed and the flow of gases is deflected, in which event the rich sublimate which has formed in the neck and about the mouth of the vent becomes covered over with a subsequent layer of kaolin, forming a hidden deposit of almost pure sulphur.

South and south-west of the two solfataras are two small lakes which drain that region. The smaller of these, called the Malaksan, has low and flat banks, is quite shallow and is about 100 feet long and about 500 feet wide. Its waters are slightly acid and apparently barren of all living matter. The larger and deeper of the two lakes, called the Pangi, is situated about half a mile south of the Malaksan and has high, steep and wooded banks and contains fresh water with an abundance of large fish. The approximate altitudes of the two lakes are respectively 1230 and 1160 feet above the sea level. With the exception of a few occasional fishermen who venture into this country, the entire neighborhood of the solfataras is uninhabited and uncultivated for miles around.

The two most important solfataras on the island of Biliran, which lies just north of Leyte, are located upon the slopes of Mount Guiron. The San Antonio, situated on the western slope at an altitude of about 1100 feet, comprises one pertenencia, and the other, the Santa Rosalia, situated on the eastern slope about 600 feet higher than the San Antonio, comprises two pertenencias. About 25 years ago considerable money was spent in the development of these two concessions, mainly in the construction of roads and pack trails between the solfataras and the two towns of Naval and Caibiran, situated respectively on the west and east coasts of Biliran. Another trail passed over Mount Guiron between the two solfataras making the connecting link in a direct route between the two principal towns of the island. Although still well defined and for the most part easily passable, portions of the trail have become so overgrown that this route across the island has fallen into general disuse.

The San Antonio sofatara in its general aspect is very similar to the To-od, south of Burauen, but is on a smaller scale, possessing an open expanse of only about 250 by 350 feet or about one-fifth that of the To-od. Its surface is pierced by numerous vents, some of them as large as ten feet in diameter, presenting the same phenomena as are exhibited on the To-od. The highest temperature recorded in the examination of several wet holes was 210 F. which is equivalent to the boiling point of water at this altitude. The hot gases emitted from the dry holes made it impossible to approach them close enough to observe their temperature with an ordinary thermometer.

The Santa Rosalia solfatara is situated at the head of the Mapula river, which flows eastward and empties into the Caibiran river near the town of Caibiran. It differs from the San Antonio and the To-od solfataras in that it does not lie upon a barren or comparatively level flat, but covers both sides and the bottom of a low, steep ridge and gully. It differs also in that it is no longer active though apparently but recently extinguished. The Mapulá, which flows about 250 feet below the solfataras, is so highly mineralized as to be unfit to drink, and its temperature in the neighborhood of the solfatara is about 95 F. It is the poorest of the solfataras both in quantity and in quality of the sulphur ore, but that this condition may be due to previous exploitation is likely.

To make a close estimate of the amount of sulphur available in any of the solfataras mentioned is impossible, on account of the irregularity of the deposit in grade as well as in dimension. From such data as may be obtained from a superficial examination alone, it is estimated that about 3,000 tons of sulphur are in sight at the To-od and Pangajaan solfataras, south of Burauen, while at the San Antonio on the island of Biliran, the estimated amount is about 400 tons. The sulphur in sight at the Santa Rosalia is innappreciable in amount.

Of all the sulphur in sight there must be deducted 25 % for losses in mining and treatment of the sulphur ore, which leaves about 2250 tons obtainable at the Burauen solfataras and only about 300 tons at the San Antonio. The proportion of loss in treatment will of course depend on the process adopted, but before deciding upon the method of extraction best adapted to the ores and locality an investigation of the problem of transportation of the refined sulphur from the solfataras to Tacloban reveals the following condition:

Both ponies and carabaos are scarce in the neighborhood and highly valued. Ordinary laborers are obtainable at ₱0.75. It is calculated that it would cost ₱17 to pack a ton of sulphur from the solfataras to Burauen and by analogy to prices paid over similar roads for transportation in other parts of the islands, it is estimated that the cost of hauling the sulphur from Burauen to Tacloban on carabao carts would be about ₱31 per ton. Freight from Tacloban to Manila would cost an additional ₱10 a ton making the total cost of transportation from the solfataras to Manila about ₱58 per short ton. In view of the limited supply of sulphur available, it would not appear advisable to install expensive hauling apparatus to reduce the cost of transportation and As Japanese refined sulphur may be purchased in Manila at about ₱50 a short ton, it is plain that the exploitation of the Burauen solfataras must prove an unprofitable undertaking.

In the case of the San Antonio solfataras on the island of Biliran, the cost of transporting the refined sulphur to Manila would not be nearly so expensive as it would be from the Burauen solfataras. The cost of transportation, including the cost of packing on ponies from the solfataras to Naval, putting the product aboard the boat at Naval, and freight from Naval to Manila, would be about ₱37 per short ton.

Owing to the small amount of available sulphur, the process of extraction adopted would have to be one requiring the least expenditure for plant and naturally, therefore, the least economical in extraction. A calcarone about 25 feet in diameter and about seven feet deep would cost to construct about 400 pesos but the loss in treatment would scarcely be less than 33 % leaving of the estimated 400 tons of

sulphur in sight only 267 tons available of refined sulphur. It is estimated that the cost of stripping, transporting to calcarone, charging and smelting would amount to about ₱3.37 per ton of sulphur produced or about ₱900 for the entire amount available. This sum would pay for the hire of one foreman at ₱3.00 and six laborers at ₱0.75 per day, working for four months, which time would be sufficient, if operations were kept up continously, to extract the entire estimated quantity of available sulphur.

The total investment would then be approximately as follows:

Construction of Calcarone	₱400.00
Stripping and Smelting	900.00
Transportation of Refined Sulphur to Manila	9879.00
Working Tools, Repairs to Trails etc.	600.00
Total	11,779.00
Total Value of Product at the Rate of ₱50.00 a ton	13,350.00

According to the above estimate, therefore, the San Antonio solfatara could be exploited at a profit of ₱1671.00, a margin of profit probably too small to interest anyone but a small investor.

MAURICE GOODMAN.

MINING NOTES

Mr. McDanields, who arrived recently in Manila, brought with him a fine lot of guano from the caves in Tayabas province. There is an excellent market for this fertilizer.

One lot of guano recently sent in from Marinduque, on analysis for phosphorus and ammonia, showed a commercial value of $14 to the ton.

During a recent trip to Olongapo by a member of the Division of Mines, a fine deposit of tripoli was discovered. This deposit is located on the pipe line about one-quarter of a mile from the bay and therefore on the naval reservation..

Tripoli, it will be recalled, is a fairly soft, chalk like rock, but made up of exceedingly fine angular particles of silica. It is one of the best polishing and cleaning substances known. As this is the only deposit of its kind we have found in the Philippines, we make mention of it here. Arrangements might be made with the naval authorities to enable some one to exploit it.

An exhibit of Philippine ores and nonmetallic minerals is being prepared by the Division of Mines, Bureau of Science, for the Pacific Commercial Museum, Ferry Building, San Francisco. Two boxes of material together with a set of all publications relating to our mineral industry have already been sent. The Division of Mines desires the co-operation of all operators and prospectors in getting a first-class exhibit placed there. This is one way to "Boost." Besides the above exhibit, the Division is preparing a number of educational sets of important minerals, ores and rocks for future distribution to the larger schools of the islands. To this end we urge the provincial teachers to collect and send in such specimens as they may find, in order that they may be classified and used in these sets.

Mr. H. A. Ferguson, geologist, Division of Mines, who recently returned from an exploratory trip to the Batanes and Babuyanes Islands, North of Luzon, reports a quantity of sulfur in a solfatara, on Camiguin Island. Judging from other solfatara deposits with which he is familiar, he believes there is a possibility of commercial development there.

Messrs. Maurice Goodman and Henry M. Ickis of the Division of Mines have returned from Masbate where they have been executing the primary triangulation on which a complete topographic and geologic map may be based for the Arroyo mining district. The geological work will be done by Mr. Ferguson some time in November. He will be assisted in the field by Mr. Clark who is familiar with the district.

The Division of Mines has invaded Mindanao. An expedition consisting of Mr. Warren D. Smith, acting chief, Henry M. Ickis and Mr. Clark left for the land of the Moros, September 16. Mr. Smith proceeded to Zamboanga and Messrs. Ickis and Clark to Cagayan de Misamis, where Mr. Smith will join them in about a month. The entire party will then proceed through the Lake country to Cotabato, from there to the Rio Grande; then over the Divide to Davao and again proceeding over the Divide to the Agusan River. They will then make their way down the Agusan to Surigao and Placer. This expedition will extend over a period of at least four or five months and much important data on the mineral resources is expected to be the result.

Joseph Pearson, the well known placer mining man from New Zealand, paid a visit to the Division of Mines and is most enthusiastic over the prospect of the development of the mining industry in the Philippines. He is interested in the dredge now in operation at Paracale and declares that he is going home to New Zealand for the purpose of bringing out more dredgers. He had a number of fine samples of free gold with him taken from the tables at Paracale and Malagat. Such views of the prospects as held by a mining man of Mr. Pearson's experience should carry weight.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

		U. S. Currency.
ABRASIVES.—		
Bort, good drill quality	carat	$ 85 00
Carborundum, grains	lb	.10- 17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1 60-2 00
ACIDS.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4 25-4.625
Sulphuric, 66° bulk	ton	18 00
Aluminum, 99%	lb	.36- 39
Antimony, needle	"	10-11
Arsenic, white	"	07½- 07½
ASBESTOS.—		
No. 1. crude	sh. ton	283 00
Fiber No. 2, paper stock	"	17.20
ASPHALTUM.—		
Trinidad	ton	30 00-32.50
California	"	22.50-30 00
Bleaching powder, 35%	100 lb	1 25-1.40
Blue Vitriol	"	7.25
Bone Ash	lb	.02¾- 04
Borax	"	.07½- 08
*Caps detonating	M	7 50
CEMENT.—		
Portland, American	500 lbs. bbl	1.55-1.60
Foreign	" "	2.25-2.90
Rosendale	300 " "	.85
*Green Island	375 lb. bbl	2 65
*Alsen		2 75
*Dromedary		2 50
*Rizal		2·50
*Independencia		2.50
CLAY, CHINA.—		
American common	lg. ton	8.50-9 00
Foreign	"	11.50-17.50
COALS.—		
Japanese		5.75
Australian		6 00
Copper	lb	.215-22
*Dynamite 40%	"	.20
Feldspar ground best	sh. ton	14 00
Fire brick American	M	30.00-40 00
Imported	"	30.00-45 00
Fire clay, St. Louis Mill	ton	2.50
*Fuse-Blasting	1,000 ft	7.50
Graphite-American ore, common	lb	.01.10
Artificial	lb	.06
Guano	sh. ton	
Gypsum-Fertilizer	sh ton	7 00
Powdered	sh. ton	10 00
Lead	lb	.05 05½
Magnesite-Greece, crude, 9.%	lg. ton	7.00-8 00
Bricks, domes	per M	160-200
Manganese, pure, 98-99%	lb	.75
Ore, 80-85%	sh. ton	35.00-60.00
Mercury, export flask	75 lbs	41.00-42.00
PAINTS AND COLORS.—		
Litharge American P'w'd	lb	.07½-.07¾
Ochre, Am. Com	sh. ton	8.50-9.00
Paris green, pure, bulk	lb	.26
Turpentine, spirits, bbl	gal	.60½
White lead, Am. dry	lb	.06⅝- 07
Am. in Oil	"	.07½-.07½
Zinc, white, Am. extra dry	"	.05⅜-.05½
Phosphates, Acid	per unit	.65- 67½
Florida hard rock	lg. ton	10.25-10 50
Land pebble 68%	"	5 75-6.00
Potassium Cyanide (98-99%	lb	18 -.19
Platinum	oz	26.00-28.50
*Powder, black blasting A	lb	.15
*Judson	"	.13½
Pyrite, Domestic Non-arsenical, lump	unit	.11- 11½
Imported non-arsenical lump	"	.13-.14
Imported, arsenical	" "	.12½-13
Saltpeter crude	100 lbs	4 25-4 50
Silica, Lump quartz	lg. ton	2 50-4 00
Ground quartz, ordinary	"	13 00-15.00
Glass sand, ordinary	"	2 75
Silver	oz	.67½
Sodium cyanide (100% KCN)	lb	.18-.19
*Steel, octagon drill	lb	.14
Sulphur, Louisiana prime	lg ton	22.12½
Roll	100 lbs	1 85-2 15
Flowers sublimed	"	2.20-2 60
Talc—Domestic	sh. ton	15 00-25 00
Italian, best	"	35 00-40.00
Tin	lb	.40¼
Zinc, metallic ch. pure	"	.15
Dust	"	.05⅞-.06¼

*Manila quotation.

NEW SMELTING PROCESS

Consul O. H. Baker, of Sydney, Australia, forwards a supplemental report on the Moore-Heskett process of producing iron and steel from ore without reduction to pig iron. He states:

My preliminary report, in Daily Consular and Trade Reports of January 29, concerning the new smelting method, awakened a very great interest throughout the United States, as I have received numerous letters asking for further particulars explaining the process.

In a communication from the manager of the company I am informed that a demonstration of the process is being carried out on commercial lines in the presence of and under the direct supervision of six experts, including the consulting engineer to the Queensland government. It is claimed that these experts saw the furnaces empty, had the ore for treatment prepared under their supervision, and the furnace started in their presence, one of them remaining at the works to supervise operations throughout the whole run.

SAVING EFFECTED—RESULT OF TEST

Mr. Henry C. Stanley, consulting engineer to the Queensland government, who visited the plant for the purpose of demonstrating the success of the patent, says:

"I spent some time in examining the plant in question and watching the process in actual operation and am satisfied that it attains the object claimed for it by the inventors. The plant having been erected for experimental purposes is, of course, on a comparatively small scale, but I am informed that it is capable of turning out 10 tons of malleable iron or steel per diem. This being the case it would seem to be of sufficient size to test the practical value of the process, and might therefore be applied to a plant of any desir.d capacity with equally satisfactory results.

"At the time of my visit the ore being treated was some of the New Zealand magnetic iron sand, but the inventors assert that it is effective in treating any ferruginous ore, provided the same is pulverized in the first place—an operation which can be readily done by mechanical means at small cost. It is unnecessary for me to recapitulate in detail the different steps of the process, but I was satisfied from what I observed that iron and steel can be made by it in an economical manner and of the best quality.

"I had no opportunity of verifying the figures given as to saving in first cost of the plant and the comparatively small amount of labor necessary to operate it, but I see no reason to question their correctness. The economy in first cost of installing the machinery, which is stated to be only one-fourth that required by the present method of smelting, as well as the 25 per cent saving in operating expenses, shoud lead to its general adoption and result in the financial success of the company. With regard to the quality of steel produced, I may say that when recently in Brisbane I was enabled, through the courtesy of the chief engineer of the Queensland railways, to test a bar of mild steel in the testing laboratory attached to his department. The tests gave most excellent results and were quite equal to the requirements of the standard specifications for steel used in bridge girders and for other structural purposes. The tests were as follows: Tensile strength, 32.78 tons per square inch; elongation in length of 8 inches, 30 per cent; contraction in area, 50 per cent; and apparent limit of elasticity, 20.79 tons.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

LEECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPH LINES, ETC.

SUNGARI RIVER CABLE.—Russia has turned over to the government of China the complete control of the telegraph system and Sungari river cable.

TOKIO'S CIRCULAR RAILWAY.—The Japanese government has decided to run electric passenger cars on the railroad that encircles the capital, but all freight will be carried by steam trains for the present.

BAKAN ELECTRIC TRAMWAY.—The Japanese Department of Home Affairs has given permission for the construction of the Bakan Electric Tramway which will run between Shimonoseki and Akama and four other branch lines, the total mileage being 7 miles and 70 chains.

BORNEO WIRELESS SYNDICATE.—A company has been formed with a capital of 2,650,000 florins for the purpose of establishing a wireless telegraph system between Java, Celebes, Borneo and the neighboring islands. It is understood that the Dutch Indian government has granted a concession to the company.

RAILWAY TO BAGUIO.—The Speyer Syndicate is reported to have agreed to build an electric line from Camp One on the Benguet road to Baguio provided that the War Department agree to establish a brigade post at the Philippines summer capital. This line will connect Manila by rail via Dagupan and Camp One with Baguio.

ELECTRIC RIPENING OF FRUIT.—Ripening of fruit by electricity is one of the latest achievements of science. The ripening experiments have been tried for the most part with bananas, and have proven this fruit may be ripened as wanted for shipment, simply by regulating the lights. This is an immense advantage to shippers over the ordinary methods.

ELECTRIC LIGHT IN PEKING.—The Taohua Electric Light Company has filed a protest against any foreign concern installing electric light outside the Legation quarters in Peking. The Dutch Minister to Peking the doyen of the diplomatic corps, has advised the Waiwupu that the matter shall be reported to the home governments of the foreign ministers.

LIGHT AND WATER POWER COMBINE AT TOKIO.—Negotiations are being carried on between the Tokio Electric Light Co. and the Katsuragawa Water Power Co. looking to the amalgamation of the two companies. Both companies secure their respective motor power from the common fountain at Otsuki and the amalgamation is expected to reduce the cost almost one-half.

INDIA'S FIRST ELECTRIC RAILWAY.—The first Electric Railway in India will, in all likelihood, be the Nilgiri Railway with its new extension from Coonoor to Ootocamund. A scheme for the electrification of the line has been investigated by the Madras Government which purchased the undertaking two years ago and the question of the expenditure involved in carrying out the proposed scheme is now under the consideration of the authorities.—*Railways*.

MELBOURNE ELECTRIC TRANSPORTATION.—Hon. Thomas Bent, in a recent address to a number of British capitalists interested in electrical industries in Australia, says the London Times, remarked that one of the objects of his visit was to arrange for the electrification of the suburban lines running from Melbourne. The State was prepared to expend $15,000,000, but he had found great difficulty in coming to any decision as to which particular system to adopt. Those present were interested in Mr. Bent's assurance that British capital, whether invested in electrical enterprises or anything else in the State of Victoria, was absolutely safe, and that they could be satisfied that no socialistic legislation would injure their investments.

RAILWAYS AND RAILWAY SUPPLIES

KUANGSI RAILWAY.—The survey of the Kuangsi railroad route has been ordered. It will begin at Wuchow.

AMUR RAILWAY.—The opening ceremonies incidental to the initial work of construction of the Amur railway were held at Srotensk, July 18.

YOKOHAMA BELT LINE.—The short line connecting the Yokohama railway station and the Yokohama customs will be in operation in July 1908.

SHANHAIKWAN-NEWCHWANG EXTENSION.—The Japanese have made a vigorous protest against the extension of the Shanhaikwan-Newchwang railway beyond Hsinmingtung.

BANGKOK AUTOMOBILE GARAGE.—A Belgian Company has been formed with a capital of 1,000,000 ticals (30 cents) for the purpose of establishing an up-to-date garage at Bangkok.

SHANTUNG RAILWAY EXTENSION.—Germany has asked the Peking government for permission to extend the Shantung line of railway into the interior of China by way of Honan.

KWANSI RAILWAY CO.—A company with a capital of ₱15,000,000 known as the Kwangsi Railway Co. has been organized to construct railways in the Chinese province of that name.

EAST INDIAN RAILWAY EXTENSION.—The survey of a line 50 miles in length, connecting Sainthia with Berhampore by way of Kandi, is being carried on by the East Indian Railway.

WEIHSIEN-CHEFOO RAILWAY.—The Peikng government has authorized the construction of the Weihsien-Chefoo railway connecting the cities of Weihsien, Huanghsien and Chefoo.

DELI-PALEMBANG RAILWAY.—A railroad in Sumatra connecting Deli on the east coast with Palembang on the south is now being surveyed under the direction of the Netherlands India Government.

PUNTUNG RAILWAY.—The first section of the Puntung railway in Shanshi has been surveyed and construction work will be pushed as rapidly as possible. This road will tap the wealthiest sections of China.

YOKOHAMA RAILWAY.—The construction of the railroad between Yokohama and Hachioji will be completed before the end of the year. The management announces that traffic over the road will begin January first.

KASHGORIA RAILWAY.—The Russian government has made application for a franchise for a railroad between the New Dominion of China and Kashgaria. The Chinese are making a strenuous objection to the granting of this privilege.

SAGHALIEN RAILWAYS.—The Russian government has appropriated about 2,500,000 roubles to be expended in the construction of a light railroad to the mines at Vladimir and for a railroad in connection with collieries near Zuisky.

MUKDEN-ANTUNG RAILROAD.—It is the purpose of changing the route of the Mukden and Antung railroad between Fengwengcheng and Mukden on account of the difficult nature of the country and in addition to double track the entire road.

MANILA RAILWAY.—The traffic receipts of the Manila Railway for the week ending August 6 inst. were $42,693 (including extensions, 207 miles open), against $32,466 (main line only, 127 miles open) for the corresponding week of 1906; making an aggregate of $1,334 434, against $964,457 for last year.

BURMAH RAILWAYS CO.—Five locomotives and tenders are in course of construction in the shops of Messrs. Robert Stephenson & Co., Darlington, for the Pegu-Moulme in extension of the Burmah railway. A dozen platform weighing machines have also been ordered from the firm of Messrs. W. T. Avery Co.

DAMAGE TO MANCHURIAN RAILWAYS.—Heavy floods damaged many bridges between Tairen and Tashihkiao and interrupted traffic early in the month of August. Similar damages were sustained between Mukden and Antung and on the ultra-mural road north of Shanhaikwan The repair construction promises to provide against a recurrence of damages by floods.

PEKING JEHOL RAILWAY.—It has been decided to build the proposed line with Chinese government funds or rather from the net profits of the Imperial Railways of North China. The new line will be known as the Ching-Ie Tieh-lu railway. Construction will begin as soon as the Peking-Kalgan line is completed. The Peking-Kalgan line is costing Tls. 7,500,000.

KIUKIANG-NANCHANG RAILWAY.—The construction of the Kiukiang-Nanchang Railway is reported to be progressing very slowly on account of lack of funds. The director general of the road made a trip over the road recently ostensibly to inspect the bridge construction on the different lines under his direction. The officials of Kiangsi have been asked to give their assistance in solving the financial problems involved.

TOKIO RAILWAY EXTENSIONS.—The following additions to the Tokio Tetsuda Kaisha will very probably be completed by the end of the present year:

A line from Minami-jimbo-cho in the Kanda Ward passing by the Koishikawa Arsenal, to Hakusan-maye.

A line from Hongo, Shichome, by Tabsaka, past the front of the Denzu-in Temple in Koishikawa, down Ando-zaka, and thence from the Yodo-gawa to Omagari.

A line from Omagari to Yodo-kawa Bridge.

A line from Shinano-machi in Yotsuya Ward to join the Shinjuku road at Shichome.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

HARBOR WORKS AT TUNGCHOW.—The works of the port of Tungchow, up the river, have been completed.

TYTAM PUMPS INSTALLED.—The powerful pumping engines have been installed for the Hongkong waterworks extension.

FORMOSAN HARBOR IMPROVEMENTS.—The Formosan government is preparing plans for the improvement of the harbor of Takao. It is estimated that over a million yen will be expended.

YOKOHAMA GAS WORKS EXTENSION —The Yokohama city legislature has authorized the issue of bonds to raise the sum of 600,000 yen to be spent in extending the gas works in that city.

HUANGPU RIVER DREDGING.—The East Asiatic Dredging Co. have commenced work on their contract to dredge the Huangpo river. The work on the new breakwater is also progressing.

PORT ARTHUR HARBOR IMPROVEMENTS.—The Japanese are preparing estimates on the dredging of the western anchorage inside the harbor at Port Arthur so as to make it available to large vessels.

TANJONG PAGAR DOCK IMPROVEMENTS.—The dock board has decided to advertise for tenders for a large extension to the docking facilities which it is estimated will cost in the vicinity of $10,000,000 gold.

DREDGING SYNDICATE FORMED.—A company with a capital of a million taels has been formed at Peking for the purpose of securing the contract for the dredging of the waterways between Paoting and Tientsin.

MOJI DOCK CO.—According to the Osaka Jiji, the capital of the proposed Moji dock company is to be seventy million yen of which ten million yen is to be paid in by the French and Belgian syndicate in November.

NANKING IMPROVEMENTS.—The foreign settlement at Nanking, which embraces an area of about one-quarter of a mile square is neatly divided by four wide streets built of concrete and cement. These streets are 32 feet wide.

PROPOSED SHIPYARD AT FUKIEN.—Japanese and Chinese capitalists are said to be interested jointly in the establishment of an extensive shipbuilding plant at Fukien for the purpose of constructing all the vessels for a new Chinese navy.

PUBLIC WORKS IN NORTHREN SAGHALIEN.—The Russian department of commerce has approved the appropriation of over a million rubles to be expended in harbor construction work at Alexandrovsky. It is expected that work will commence early next year.

MANDALAY WATER SUPPLY.—The municipal authorities at Mandalay are endeavoring to solve the problem of water supply. The investigation now on includes the consideration of a reservoir in the hills to supply water by gravitation, deep wells or a scheme to secure the supply from the river.

CANAL TO CONNECT TOKIO AND YOKOHAMA.—Prominent traders of Yokohama propose to make a canal between Yokohama and Tokio for the transport of merchandise. The promoters have established a temporary office at South Maka-dori, and appointed Mr. J. Inouye, a civil engineer, to investigate the route between the two cities.

SAMARANG HARBOR IMPROVEMENTS.—The business men of the port of Samarang, Java, have petitioned the government for an appropriation to be spent in dredging the harbor at that point and increasing the size of the custom house at that point. The harbor has been slowly silting up and owing to neglect has become quite shallow in many places.

PEKING WATER WORKS.—The Chinese government has decided to appropriate the money necessary for the installation of a modern water work system at Peking. The work will be carried on under the direction of Chinese officials and the order for the necessary supplies and machinery will be placed in Germany. This action on the part of the Peking authorities was taken in order to eliminate foreign applications.

SUNGEI PINANG RECLAMATION.—The Public Works Department of the Straits has submitted the following estimates for 1907:

Sungei Pinang, Strengthening River Wall, South,	$50,500
Sungei Pinang, Strengthening River Wal, North,	32,500
Sungei Pinang, Rubble Wall and Reclamation,	28,000

It is believed that these works will cost in the neighborhood of $300,000 before completion. The original estimate was $150,000 but the serious subsidence of the filling has almost doubled the cost of the work.

SHIPBUILDING, GENERAL MARINE, SHIPBUILDING, ETC.

TREMONT AND SHAWMUT SOLD.—The Pacific Mail has purchased these two big vessels from the Boston Steamship Co.

OSAKA SHOSEN BUYS CANADIAN PACIFIC VESSELS.—The report of the sale of the Athenian and the Tartar by the Canadian Pacific to the Osaka Shosen is in circulation at Tokio.

KAWASAKI DOCKYARDS BUILDS GUNBOAT.—The Chinese Government has ordered from the Kawasaki Shipbuilding Yard, Kobe, the construction of a gunboat. The cost is said to be *yen* 1,400,000.

YOKOHAMA-CALCUTTA LINE.—The Indo-China S. N. Co. has arranged for a direct steamer service of three modern vessels between Yokohama and Calcutta by way of Kobe, Moji, Hongkong, Singapore and Penang. These steamers will run in conjunction with the Apcar line.

NEW BLUE FUNNEL FREIGHTERS.—The Blue Funnel line will add four new freighters of 10,000 tons gross each to the Liverpool-Victoria route. The vessels, when completed, will be 550 feet long, 58 feet beam and 42.6 feet deep. These vessels will follow the example of the other vessels of the Blue Funnel vessels and call at all the different ports in the Orient as the demand may require.

NEW VESSEL LAUNCHED.—The Kagi Maru built by the Kawasaki Dockyard Co. was successfully launched at Kobe and is a credit to the contractors.

The vessel is a single screw steel spar-deck steamer of 2,500 gross tonnage. It is 300 ft. long, 31 ft. in breadth, and 24 ft. in depth, and is capable of accomplishing 14 4-5 knots. There are 20 first-class cabins, 32 second-class, and there is accommodation for 260 third class passengers.

The Kawasaki Dockyard Co. has the contract for three more vessels of 6000 tons each to be built for the Osaka Shosen Kaisha which will be placed on the American run.

Concrete in Steamer Repairs.—Concrete has come into use in connection with steamship repairs. The Iron Age declares that it was successfully employed to patch up the hull of a steamer. She struck on a jagged rock, and several holes were made in the iron hull of the vessel. The largest one was about 80 feet from the bow, and it measured about 35 feet in each direction, and through this great gap came the rock, projecting for nearly 11 feet into the hold. Those responsible for the salvage operations managed to patch up the breach by means of concrete, and, although leaks developed, the water was pumped out of the hold and the ship was towed 40 miles to a dry dock.

Svenska Ostasiatiska Kompaniet.—The Belgian Legation in Stockholm report that a company has been formed with a capital of 6,000,000 kroner (about £333,000), to establish a direct service of steamers between Sweden, China, and Japan. An agreement has been concluded between this company, which is entitled "Svenska Ostasiatiska Kompaniet" and the "Ostasia tiske Kompagni" of Copenhagen, according to which each company will run four steamers of from 6,000 to 8,000 tons to China and Japan, starting alternately. The steamers will touch at some European port and at Port Said, Colombo, Penang, Singapore, Hongkong, Shanghai, Vladivostock, Yokohama, Kobe and Moji; the same freight rates will be charged from Gothenburg as from Copenhagen and Hamburg. It is expected that this new service will stimulate the exports from Sweden to the Far East, which are at present estimated at 50,000 tons a year, mainly iron and steel, machinery, cement, matches and paper. The Swedish Diet has voted a subsidy to the "Svenska Ostasiatiska Kompaniet."

MINES, MINERALS, AND THE METAL TRADE

Rich Tin Strike.—Kula Kerling in the Ulu Selangor district is the scene of a remarkably rich strike in tin covering an area of over 200 acres.

Tin Refining in Hongkong.—Chinese tin to the amount of 5,000 tons from the mines at Mongtze, Yunnan, passes through the Hongkong refineries, annually.

Ipoh Tin Mines.—The Chendai Lode Syndicate operating near Ipoh has developed two large lodes and the syndicate has decided to install a five-head battery.

Manchurian Flour Mills.—A syndicate of five flour mill companies, consisting of the Sungari, Manchiurian and three others, has been concluded at Kharbin.

Mining Concession of Jehol.—The Lieutenant Military Governor of Jehol, Ting Chieh, has signed an agreement granting a mining concession in Jehol to a British merchant named Ede.

Dredges for Tin Mining.—An order has been placed by the Malacca Tin Dredging Co. with Messrs. Riley Hargreaves & Co., Singapore, for the construction of a large and powerful suction dredger.

Tongkah Tin Mines.—The Chersonese Syndicate has decided to proceed to the development of the Taimuang mine, one of the most important of the properties controlled by the syndicate in the western Siamese States.

Muroran Steel Foundry Reclamation.—Mr. Hashimoto of Sendai has been awarded the contract for the work of reclamation and levelling in connection with the Muroran Steel Foundry. The price submitted was 1,440,000 yen.

Thibetan Mines.—Several mineral experts have been sent to Tachinlu on the Thibetan border by the Chinese resident at Thibet for the purpose of prospecting that territory and report on the extent of the mineral wealth and the most desirable means for its development.

Anglo-Japanese Steel Works.—The contract between the Hokkaido Colliery S. S. Co. representing Japanese capital and Messrs. Armstrong and the Vickers-Maxim Co. representing British capital for the joint establishment of a large steel works at Hokkaido has been signed.

Eastern Smelting Co.—A company having a capital stock of $1,250,000 was recently registered at Penang and has for its purpose the establishing of a smelting plant in the Straits Settlements. The company has asked the F. M. S. government for permission to export ore from the Federated States.

Formosan Iron and Engineering Works.—The Formosan Iron and Engineering Works, (Ltd.) with a capital of $500,000 gold has been organized in Tokio and will install a large plant in Southern Formosa. The greater part of the stock has been subscribed by the owners of the Formosan sugar mills.

Electric Smelter at Hanau.—A new electric furnace, for determining the fusion of refractory substances, has been constructed at Hanau by W. C. Heraeus. Its essential part is a tube of iridium four-fifths in diameter, and in this temperatures between 1,500 degrees and 2,000 degrees Celsius can be maintained for any desired length of time.

Borneo Coal.—Development work on the coal deposits of the Breow River, Dutch Borneo, is reported to have established the reputation of the product, and several syndicates are being formed to make further explorations. Expert reports announce that the coal is better than Australian and far superior to Japan coal. Steamship companies in the Far East are greatly interested in the outcome.

Opening of a New Copper Mine.—According to a joint memorial from Viceroy Tuan Fang and Governor Jui Liang, permission has been given for the working of a well-known copper mine in the district of Kanchow, in Kianghsi, with a capital of Tls. 500,000, which is to be equally contributed by the Provinces of Kiangsu and Kianghsi. The output will be used for coining and other purposes in the two provinces.

North Kyushu Collieries.—The output of the Chikuho colliers during the first half of this year amounted to 3,268,713 tons; an increase of 314,063 tons over the quantity during the corresponding period of last year. The monthly returns for this year are as follows:

	Tons
January	544,522
February	428,702
March	575,917
April	557,522
May	579,572
June	582,478

FINANCIAL AND MISCELLANEOUS

Chinese Tongsan Cement Works.—The works are being enlarged and reorganized.

Japanese Tobacco Monopoly.—The Japanese Resident in Seoul is making arrangements to extend the tobacco monopoly to Korea.

Nipon Bijutsu Kogei Kaisha.—A company has been formed in Japan under this title with a capital of two million yen for the purpose of manufacturing objects of arts.

Formosan Exchange Organized.—The Tainan Rice Sugar and Stock Exchange has been organized by Japanese merchants at this important port in Formosa with a capital of 300,000 yen.

Onoda Cement Co.—This company has decided to increase its capital to yen 1,000,000 and in conjunction with the Mitsui Bussen Kaisha proposes to establish a factory in Manchuria.

Ensui Sugar Co.'s Loan.—The Ensui Sugar Manufacturing Co. at Tainan, Formosa, has received advices from London that a loan of yen 900,000 had been floated for the company.

Water Company at Swatow.—The acting viceroy has given his consent to the petition recently presented to him by the people of Swatow asking permission to establish a Water Company.

Japan's National Debt.—At the end of July, the total amount of Japan's national indebtedness was 2,312,943,462 yen, of which 1,051,188,602 yen are domestic and 1,261,754,860 yen foreign loans.

Japanese Hemp Manufacturing Co.—The first meeting of the Imperial Hemp Manufacturing Co. was held recently at the Bankers' Club for the purpose of considering amalgamation with the Nippon Seima Co.

Japanese Potatoes.—The cultivation of potatoes has been lately in vogue in various prefectures and greatly increasing. An amount of 400,000 yen was exported last year. The crops this year are especially good.

Sapporo Lumber Co.—The establishment committee of the Sapporo Lumber Company, of Japan, promoted by Mr. H. Nakazawa and many other persons, with a capital of 6,000,000 yen, has decided to decrease its capital to 1,200,000 yen.

Japan China Bank.—A plan is on the tapis to establish a banking corporation under the name of the Japan-China Bank by Messrs. S. Ito, S. Uchimura and others with a capital of 5,000,000 *yen*. The head office is to be established at Kobe, a branch office at Tairen.

Volcanic Ashes for Cement.—A large trade is being done in Japan in volcanic ashes. The ashes, which are used as a substitute for cement, are supplied in great quantities to the Mitsu Bishi and Kawasaki Dockyards, the Sasebo Naval Yards and foundries and factories all over the country.

Tapioca Mill in Siasi.—A company comprised of American capitalists has been organized to develop the islands of the Siasi group off Mindanao. A plantation will be opened up on the island of Lapac and trading stores on each of the different islands. A tapioca mill will also be installed.

Rails for Manchuria.—The first consignment of American steel for Manchurian railways was shipped on the British steamer *Askehall* from New York, July 20. Forty steamers have been chartered to carry the total purchase of 40,000 tons of material by the Japanese government and the cost is estimated at $10,000,000.

Weaving Companies Amalgamate.—The negotiations for amalgamating the Nippon Hemp Weaving Company and the Hokkaido Weaving Company have been settled between the Directors on both sides. Extraordinary general meetings of the two companies will be held shortly to obtain the shareholders' approval.

Timber Business in Manchuria.—The negotiations between Japan and China on the timber business in Manchuria are not yet concluded. Japan proposes to include the Tangchiakiang in the area of the concession but the Chinese authorities are against the proposal as that river has no connection with the Yalu.

Siberian Butter.—At a recent conference of exporters of Siberian butter, it was stated that for 1907 an export from Siberia to the West of about 3,600,000 pounds of cream butter (approximately sixty million lbs. avoirdupois) was anticipated, or about 1,500,000 pounds (about twenty five million lbs.) more than last year.

New South Wales Rubber.—The following company has been registered in New South Wales:—

Oceanic Rubber Planting and Trading Company, Limited, capital £10,000 in £20, shares, to acquire the business of A. E. and Charles Harland, planters and traders, in the Banks group, New Hebrides, etc. Office: Sydney.

Flax Manufacturing Trust.—The amalgamation of the Hokkaido Flax Manufacturing Co. with the Japan Flax Manufacturing Co. has been effected. For this purpose both companies held extraordinary meetings of shareholders at the Geological Association, Kyobashi, and the Banker's Club respectively. The formal contracts were exchanged between both parties.

Toyo Cement Co.—The Toyo Cement Company (which was organized with a capital of 10,000,000 yen by amalgamation with the Saga, the Kyushu, the Miye and the Okayama Cement Company which were already conducting business, and also with the Tokoku and the Manshu Cement Companies, which were under organization) has decided to decrease its capital by 5,000,000 yen.

Toyo Zinc Company.—A general meeting of the shareholders of the Toyo Aen Kaisha (zinc company) with 3,000,000 yen capital, which is being promoted by a number of prominent businessmen with Baron Shibusawa as Chairman of the Establishment Committee, will be held on May 13 to obtain approval of the shareholders to wind up the company. The expense incurred for organizing the Company will be borne by the promoters.

Sugar Trust in Japan.—As the result of the amalgamation of the Dai Nippon Sugar Refining Company with the Dairi Sugar Refinery, the former Company has decided to float 3,000,000 yen debentures under the guarantee of the First Bank and the Japan Credit Mobilier. The rate of interest will be 7 per cent per annum, the price of issue 97 yen, and the period of redemption seven years after remaining unredeemed for the first three years. The date of issue is still undecided.

Dalny's Population.—The population of Dalny, according to a police census taken in December, 1906, is given as 23,483. The returns show that there are 1,762 Japanese shops, stores, and firms there, of which about 200 may be classed as firms, and of these probably 50 are large, reliable, and of some prominence. The Chinese shops, stores, and firms are placed at 908, though influential Chinese firms do not exceed one dozen. There are also three British and American firms, branches of houses already established in China and Japan.

Dockage Rates at Tairen.—The South Manchurian Railway Co. has fixed the Tairen dockage as follows:

Gross tons.	Within 3 days. Yen.	Per day from 4th day. Yen.
Below 300	500	50
300 to 400	530	55
400 to 500	560	60
500 to 600	590	65
600 to 700	620	70
700 to 800	650	75
800 to 900	680	80
900 to 1,000	710	85
1,000 to 1,100	740	90
1,100 to 1,200	770	95
1,200 to 1,300	800	100
1,300 to 1,400	830	105
1,400 to 1,500	860	110

Every ton above 1,500 tons is charged at the rate of 50 sen for the first three days and five sen per day from the fourth day.

Manchurian Development.—Consul-General W. D. Straight, of Mukden, writes that the commissioner of customs at Mukden, in a recent report to the Viceroy, calls His Excellency's attention to the fact that in their freight tariff the Japanese railway authorities discriminate against the Chinese port of Newchwang in favor of Dalny. In order to create healthy competition in the carrying trade the commissioner recommends the following:

(1) The imperial railways of north China be extended from Hsinmintun to Fakumen, a distance of 160 li (53 miles), and later continued north to Tsitsihar, the capital of Heilungchiang province, thus affording winter transport to Chingwantao or some other ice-free Chinese port to be hereafter established for the grain produced in the west Liao region. It will otherwise be necessary to store this produce in Fakumen, Tungchiangtzu, or Hsinmintun for shipment to Newchwang when the river opens in the spring, or to haul the grain to Tieling or some other point on the railway, whence it would probably be exported through Dalny.

(2) The Liao River be conserved and that a company be organized to operate light-draft river steamers.

(3) The repair of the cart roads between Fakumen and San Mien Chuan (on the Liao), Tieling and Mafangkou, and Changtu and Tungchiangtzu. Post-roads such as have been constructed in Chihli province are suggested as models, there being no necessity for attempting elaborate road building in this region.

The viceroy has referred the recommendations to the various departments of the provincial administration and requested them to report on the means by which they may best be carried into effect. An official has already been dispatched to Japan to study river conservancy.

JAPANESE LUMBER IN AUSTRALIA

Consul-General J. P. Bray, of Melbourne, reports that a few months ago the first cargo of Japanese lumber ever shipped to Australia was landed in Melbourne and met with such a ready market that a further shipment has just arrived and there seems every probability of a permanent business being established. The cargoes consist of pine, oak, ash, and basswood, in logs of various sizes squared by the ax only, and, it is said, can be landed in Australia at a lower figure than other imported lumber.

AN EXTRAORDINARY RUBBER TREE

One and a half pounds of dry rubber per month from a 16-year old Para tree sounds fabulous and ought to water the mouth of our great Rubber magnates of this Island, says a writer in the *Ceylon Morning Leader*. So it is and we have it from good authority that a 16-year old Para in Dea Ella Estate, Galapedera, yielded this average per month during last year's tapping. This special tree which has not much of a girth for its age, branches off beautifully about 5 feet from the ground and stands on gravelly soil. The system of tapping adopted was the usual full-herring bone and it has been very lightly tapped every other day. The flow of latex during the tapping had been so great that it required the services of a special cooly and an unusually large cup has had to be placed to receive the extra latex during the nights. The Superintendent of this estate uses a special knife invented by him; it gives a clean cut and does not pierce into the cambium. The knife in fact is a safety one and can be put into the hands of any ordinary laborer without danger to the tree. Any further particulars needed have been kindly promised by the Superintendent of this estate to anyone who is willing to communicate to him.

DISCOVERY OF PEARLS IN KAMSCHATKA

It is reported from Dalyokaya Okraina (Vladivostock) that a Russian quite accidentally succeeded in finding traces of pearls in Kamschatka. Guided by Kamschadales he penetrated into the depth of the peninsula, between 250 and 370 versts from the sea coast. Reaching the mouth of a tributary of a tortuous river, he discovered shells containing pearl. In one day he collected 94 shells. Not having time for the continuation of the work, he then left Kamschatka. Being in Vladivostock he obtained an analysis of the shells, and found a remarkable river milk-colored, dull pearl, valued by local merchants at five roubles each, on an average.

AUSTRALIAN FLOUR IN CHINA

Vice-Consul-General S. J. Fuller, of Hongkong, reports that the American flour merchants in that city understand that unusually large contracts have been placed for Australian flour to be delivered in Hongkong. These contracts are understood to total more flour than has ever before been contracted for in Australia for the Hongkong market, and estimates ploce the total amount at from 300,000 to 500,000 bags, while it is stated that 80 000 bags is the largest that has been under contract at any one time in the past. The reason given for the ability of the Australian millers to secure this business is that the American mills are now and have been for some time unable to make deliveries.

INVESTMENTS IN JAPAN

Consul-General H. B. Miller, of Yokohama, reports that the total capital subscribed to the stock of the new companies organized in Japan during the month of March amounted to $11,995,000, while the increased capital of old companies during the same period amounted to $23,173,800.

Of the new companies organized during March, the capital of the banks aggregated $960,000; cotton mills, $262,500; railways, electric, and tram, $650,000; manufactures, $2,750,000; mining, $1,500,000; commercial and miscellaneous, $5,085,000; marine, $1,050,000, and electric power, $100,000. During the month old banks increased their capital by $10,861,300; manufacturers, $150,000; insurance, $2,650,000; mining, $2,500,000, and commercial and miscellaneous, $6,650,000.

During the twenty months ended with February, 1907, the amount of capital subscribed to new Japanese companies was $553,574,900, while the increased capital of the old companies amounted to $229,427,365. Of the new companies organized, the aggregate capitalization of the banks amounted to $17,380,000; cotton mills, $16,676,500; electric, $58,992,500; mining, $30,260,000; marine, $13,862,500; railways, $159,100,000; manufactures, etc., $161,903,400; navigation, $20,900,000; insurance, $16,850,000, and commercial, etc , $57,650,000. The increase of old companies during the twenty months were: Banks, $36,564,675; cotton mills, $20,902,715; electric, $17,680,000; mining, $9,575,000; marine, $805,000; railways, $56,089,900; manufactures, etc., $49,298,500; navigation, $4,200,000; insurance, $9,925,000; commercial, etc., $24,386,575; total subscribed and increased capital, $783,002,265.

PHOTOGRAPHY AND MINING

An exchange reports the invention of an apparatus for securing negatives of the strata exposed by the drill in testing mining properties.

The invention consists of a camera enclosed in a water-tight tube, provided with a window and reflectors, and lowered down the hole by a suitable cable. The exposures are controlled by electricity, and accurate photographs of the varying strata through which the drill has passed can be obtained. Much of the information given by colors or differences in light and dark surfaces is lost in the photograph, but from the crystalline structure of the ore, positive information as to its nature can be obtained, and the detection of the juncture with the rock is possible.

OFFICIAL

OFFICE OF THE SECRETARY OF COMMERCE AND POLICE.

Manila, P. I., August 23, 1907.

SEALED PROPOSALS, in triplicate, will be received in the office of the Secretary of Commerce and the Police, until 23rd day of September, 1907, at four o'clock p. m., then and there to be publicly opened, for a concession to construct a railroad from San Fernando, province of Pampanga, to Arayat, in the same province, a distance of approximately nine (9) miles.

The proposals shall specify the nature of the concession desired, includng:

1. The motive power to be used.
2. The style and type of railroad.
3. The weight of rails.
4. Section of roadbed.
5. Nature and extent of privileges for using public highways.
6. General style and amount of equipment to be used.
7. The exact route of the proposed railroad
8. Extent of expropriation privileges asked for
9. What concessions other than strictly railroad, such as electric light, heat or power systems, are asked for in addition to the railroad franchise.

Proposals shall be made subject to such other terms and conditions as may be subsequently determined upon by the Philippine Commission, the bidder having the right to withdraw his bid should the terms and conditions proposed by the Philippine Commission prove unsatisfactory.

Proposals shall be accompanied by ten thousand (₱10,000) pesos in cash, or a certified check for that amount.

The right is hereby reserved to reject any or all proposals or waive any defects.

W. CAMERON FORBES,
Secretary of Commerce and Police.

HEMP STATISTICS, 1st SEPTEMBER, 1907

(Courtesy of C. S. NICHOLSON, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 31st August		495,069 *Bales.*
Arrivals of hemp at Cebu up 31st August		131,228 *Bales.*
Arrivals of hemp at all Ports up 31st August		626,297 *Bales.*
Stocks on hand in Manila, Cebu on 1st January		63,432 *Bales.*
TOTAL		689,729 *Bales.*
Export to all parts to date 31-8-07	587,745 *Bales.*	
Local consumption estimated at	6,079 "	593,824 *Bales.*
Total stocks at Manila, Cebu on 1st September, 1907		95,905 *Bales.*

EXPORT OF HEMP, AUGUST, 1907.

Date	Vessel	London	L'pool	Atlantic U. S.	Pacific East & California	Australia	Other pts.	Total Bales
	F'wd:—	174,303	58 707	205,103	17,700	7,285	44,534	507,632
Aug. 2	Rubi	800	835				100	1,735
" "	Yuensang	2,033	750				450	3,233
" 3	C. Ferd. Laeisz						375	375
" "	Seneca.............Cebu			12,055				12,055
" 5	Alicante	850					115	965
" "	Shawmut				10,000			10,000
" 6	Taming						350	350
" 8	Chingtu					250		250
" 9	Tsinan						12	12
" "	Zafiro						400	400
" 10	Dray Castle			8,786				8,786
" "	Sungkiang.........Cebu		275				50	325
" 12	Nikko Maru					900		900
" 13	Tean		550					550
" 16	Rubi	1,026					450	1,476
" 17	America Maru				750			750
" "	Yuensang	50	1,750					1,800
" 18	Yunnan	6,305					1,000	7,305
" 19	Prinz Sigismund						217	217
" 23	Zafiro						550	550
" 24	Loongsang	300					737	1,037
" "	Dray Castle........Cebu			8,186				8,186
" "	Polyphemus.........do..	4,821	940				375	6,136
" "	Kaifong...........do..		1,050					1,050
" "	Ambria..............do..						500	500
" 28	Pathan			9 8				9,886
" 30	Yawata Maru						73	73
" "	Rubi	911					100	1,011
" 31	Indrawadi						200	200
	TOTAL	191,399	64,857	244,016	28,450	8,435	50,588	587,745

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for September, 1907.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation .... do do (new)..	1865 1907	$15,000,000	80,000 40,000	$125 $125	$125 $62½	g £1,000,000 s $11,750,000 i $250,000	$1,797,169	30-6-07	£1.15/- for half year ending .... $30.6.07 @ ex 2/2⅜=$16 04 per share........	4¾	$647½ sa. ex n. issue $505 n i. £78 ex n. issue £60-10/- new issue (first call)
National Bank of China, Ld.........	1891	£699,475	10) 99,925	£7	£6	c £12,735 $300,000	$71,293	31-12-06	$2 (London 3/6) for 1903........	....	$51
Russo Chinese Bank........		Rbs. 15,000,000 Tls. 2,000,000	80,000 16,000	Rbs. 187½ Tls. 125	Rbs. 187½ Tls. 125	g Rbs7,130,500 s Rbs2.000,000 s Tls 800,000			9 per cent........		Tls. 175
MARINE INSURANCES.											
Canton Insurance Office, Ld.........	1881	$2,500,000	10,000	$250	$50	$1,675,000 j $200,000	$233,638	31-12-05	$20 for 1905........	7½	$270
North China Insurance Co., Ld.....	1863	£150,000	10,000	£15	£5	g £110,000 s Tls. 100,000 f Tls. 50,000	Tls. 185,529	30-6-06	Interim of 7s. 6d. for account 1906 at ex. 2-10-11-16 per tael	6	Tls. 77½ sellers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £70,000 f $456,407 j £125,137.15 u $817,628	$1,460,490	31-12-06	Final of $12 making $42 for 1905, and interim of $30 for account 1906........	5½	$760 sa. and b.
Yangtsze Ins. Association, Ld.....	1862	$800,000	8,000	$100	$60	$850,000 j $136,287 f $ 15,527	$461,476	31-12-06	$12 for year ending 31. 12. 05....	6¾	$170
FIRE INSURANCES.											
China Fire Ins. Co., Ld........	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $320,449 f $7,616	$362,980	31-12-06	$6 and bonus $2 for 1905........	9½	$87 sales
Hongkong Fire Ins. Co., Ld.........	1868	$2,000,000	8,000	$250	$50	$1,256,483	$435,236	31-12-06	$40 for 1905........	12½	$315
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$365	31-12-06	$1 for 1906........	6¾	$15 buyers
Douglas Steamship Co., Ld.........	1883	$1,000,000	20,000	$50	$50	$264,638 i $93,562	Nil.	30-6-06	$2½ for year ended 30-6-06........	6	$41
Hongkong, Canton & Macao Steamboat Co., Ld........	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $600,000 f $144,386	$27,101	30-6-07	$1 for 1st half year ending 30-6-1907........	7½	$28
Indo-China Steam Navigation Co., Ld........ (Preferred).... Do. Do. (Deferred)	1882	m £600,000	2) 60,000	£5	£5	£60,000 i £270,958	£3,694	31-12-06	5/- @ ex. 2-2¾=$2.24 per share for 1906........	3½	$39 buyers $28 buyers
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 54,372	Tls. 13,327	31-12-06	Interim of Tls 1¾ for a/c 1907......	11½ 10½	Tls. 47½ Tls. 48 buyers
"Shell" Transport & Trading Co., Ld........	1898	£ 2,000,000	2,000,000	£1	£1	£400,000 i £5 167.14-1	£85,355-6-10	31-12-05	1/-(Coupon No. 8) for 1907........	4½	45/-buyers
"Star" Ferry Co., Ld........	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $32,957	$137	30-4-07	$1.00 50 cts. for year ended 30-4-07	5 4	$20 $12
Taku Tug & Lighter Co., Ld....	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 419,479 e Tls. 62,000 i Tls. 81,200 q Tls. 30,000	Tls. 18,730	31-12-06	Final of Tls. 2 making Tls. 6 for 1906........	12	Tls. 50 sellers
REFINERIES.											
China Sugar Refining Co., Ld.....	1878	$2,000,000	20,000	$100	$100	o $345,741 e $450,000 r $ 56,848	$9,218	31-12-06	$8 for year ending 31-12-06........	8½	$98 sales
Luzon Sugar Refining Co., Ld.....	1882	$700,000	7,000	$100	$100	none	*Dr.* $138,523	31-12-06	$3 for 1897........	....	$21
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 8,935	31-8-06	Tls. 4. (8%) for year ending 31-8-06........	4½	Tls. 90 sellers
MINING.											
Chinese Engineering & Mining Co., Ld........	1901	£1,000,000	1,000,000	£1	£1	d £110,000 h £12,289	£12,546	28-2-06	Interim of 1/6 for account year ending 28-2-07........	4	Tls. 15.20 buyers
Raub Australian Gold Mining Co., Ld........	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	*Dr.* £15,481	31-3-06	No. 12 of 1/-=48 cents........	....	$7 buyers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.........	1889	$450,000	z 18,000	$25	$25	$64,124	$10,335	31-12-06	$1¾ for year ending 31-12-06........	10½	$17
Hongkong & Kowloon Wharf & Godown Co., Ld........	1886	$2,000,000	40,000	$50	$50	$550,000 t $23,152 i $30,000	$3,047	31-12-06	Interim of $2 for six months ending June 30th 1907........	6¼	$65
Hongkong & Whampoa Dock Co., Ld........	1866	$2,500,000	50,000	$50	$50	v $50,000 $56,299	$491,580	30-6-07	$4 for half year ending June 30th 1907........	7¾	$105
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 10,459	30-4-07	Tls. 3 for year ending 30th 1907....	3¾	Tls. 79
Shanghai & Hongkew Wharf Co., Ld........	1902	Tls. 3,600,000	14) 36,000	Tls. 100	Tls. 100	b Tls. 487,210 r Tls. 100,000 p Tls. 190,100 e Tls. 75,000	Tls. 23,117	31-12-06	Interim of Tls. 8 for a/c 1907........	8	Tls. 226 buyers
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld........	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 15,000	Tls. 3,388	28-2-07	Tls. 6 for 14½ months ending 28-2-07........	6	Tls. 103
Astor House Hotel Co., Ld........	1901	$750,000	4) 30,000	$25	$25	$30,000	$10,908	30-6-07	$2½ for year ending 30-6-07........	9¾	$23
Astor House Hotel, Ld. (Tientsin)	...	Tls. 100,000	2,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-06	Final of Tls. 6½ making Tls. 11½ for year ending 28-2-06.	8½	Tls. 140 buyers
Central Stores, Ld........	....	$751,845	16) 50,123	$15	$15	n. $1 000	$9.178	31-12-06	$1.80 for 1906........	12	$14½
Hongkong Hotel Co., Ld........	1866	$600.000	12 000	$50	$50	$648,975 r $26,075	$371	31-12-06	$5 for 2nd half-year making $10 for 1906........	10	$100 buyers
Hongkong Land Investment & Agency Co., Ld........	1889	$5.000,000	50,000	$100	$100	e $250,000	$56,218	31-12-06	Interim of $3½ for half year ending 30-6-07........	7½	$98 sellers
Humphrey's Estate & Finance Co., Ld........	1887	$1,500,000	150,000	$10	$10	i $208,386 e $50,000	$11,567	31-12-06	80 cents for 1906........	7¾	$10½

FAR EASTERN STOCKS AND QUOTATIONS—(CONTINUED.)

STOCKS	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$1089	31-12-06	$2½ for 1906	7	$36
Shanghai Land Investment Co., Ld.	1888	Tls. 3 900,000	78.000	Tls. 50	Tls. 50	Tls 869,493; e Tls. 170,000	Tls. 61,978	31-12-06	Interim div. of Tls. 3 per share for % 1907	7½	Tls. 102 sellers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 71,685	Tls. 1,973	31-12-06	Final of Tls. 5 making Tls. 8 for 1906	....	Tls. 100 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,519	31-12-06	Interim of $2 for six months June 30th 1907	8½	$48
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000; Tls. 45,939	Tls. 64,986	31-10-06	Tls. 10 for year ended 31-10-06	15½	Tls. 65 buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $110,000	$21,660	31-7-06	$1¼ for year ended 31-7-06	11½	$11
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 36,211	30-9-06	Tls. 6 for year end. 30-9-06 (8%)	11½	Tls. 52 buyers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	7) 8,000	Tls. 100	Tls. 100	none	Tls. 31,469	31-12-06	Tls. 8 for 1906	8¾	Tls. 9
Soy Chee Cotton Spinning Co., Ld.	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	16½	Tls. 300
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12-6	£814	£856	31-12-05	1s. 3d. for 1906	9	$ 6½
Campbell, Moore & Co., Ld.	1886	$12,000	1,200	$10	$10	$9,000	$653	31-12-06	$3 for 1905	....	$20 sellers
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	none	Nil.	31-12-06	$1 for 1904	....	$9.25 sales
China Flour Mill Co., Ld.	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 50,000	Tls. 889	31-12-05	Final of Tls. 5 making Tls. 10 for 1905	....	Tls. 60
China Light & Power Co., Ld.	1901	$550,000	50,000	$10	$10	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$6 sales & buyers
Do. do. Special Shares	1907		17) 50,000	$1	$1						
China Provident Loan & Mortgage Co., Ld.	1898	a $1,000,000	100,000	$10	$10	$115,000	$855	31-12-06	80 cents for 1906	9	$9
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	$50,000	$2,555	31-7-06	$1.30 for year ending 31-7-06	8½	$16 buyers
Green Island Cement Co., Ld.	1889	$2,000,000	200,000	$10	$10	p $411,000; $500,000	$10,804	31-12-06	Interim div. of 50 cents per share for % 1907	9	$11 sellers
Hall & Holtz, Ld.	....	$420 000	21,000	$20	$20	$186,000	$15,002	28-2-07	$2½ for year ending 28-2-07	11½	$20 sellers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$2,953	28-2-07	$1.00 for year ending 28-2-07	7¾	$14 sales
Peak Tramways Co., Ld. / Do. (New)	1907	$750,000	25,000 / 50,000	$10 / $10	$10 / $10	none	$2,655	30-4-07	$1 per share for period from 19th Oct. to 30th April, 1907	8½	$12.70 sales
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	25	k $105,000	$4,361	31-12-06	Interim of $4 for ½ year ending June 30th 1907	9½	$240
Hongkong Rope Manufacturing Co., Ld.	1883	$500,000	50,000	.... $10	10	$65,000	$4,212	31-12-06	Interim of 80 cents per share for % 1907	8	$25 buyers.
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500; i Tls. 27,603	Tls. 10,374	31-10-05	Second interim div of Tls. 7½ making Tls. 15 for account 1907	9½	Tls. 325 buyers
Philippine Co., Ld.	1904	$675,000	67,500	$10	$10	none	Dr. P. 34,324	31-12-05	None	....	$5 buyers
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 7,990	31-12 06	Final of Tls. 3½ and bonus of Tls. 1½ for year ending	7¾	Tls. 108¾
Shanghai Horse Bazaar Co., Ld.	1904	Tls. 270,000	5,400	Tls. 50	Tls. 50	Tls. 67,323	Tls. 9,751	31-12-05	Tls. 4 for 1905		
Shanghai Pulp & Paper Co., Ld.	....	Tls. 450,000	4,500	Tls. 100	Tls. 100	Tls. 45,000; e Tls. 8,000	Tls. 3,354	31-12-06	Final of Tls. 5 making Tls. 10 for 1906	....	Tls. 30 buyers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820; w Tls. 50,000	Tls. 7,843	31-10-06	Final of Tls. 6 making Tls. 10 for 1906	14	Tls. 70 sellers
Shanghai Waterworks Co., Ld.	1881	£288,000	8,175 / 7,200	£20	£20 / £15	Tls. 190,000	Tls. 85,592	31-12-05	Interim of 15/- for % 1907 / Interim of 11/-3 for % 1907	8½ /	Tls. 121 buyers / Tls. 310 buyers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $41,934	28-2-06	None	....	Tls. 280
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	214	31-5-06	30 cents (old) and 15 cents (new) for year ended 31-5-06	.... / 4½	$22 / $6½
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259; e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 97
Union Waterboat Co., Ltd.	1905	$500.000	16) 50,000	$10	$10	none	$349	31-12-06	First year	....	$12
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$25,000	$752	31-5-06	80 cts. on 9,900 ord. shares & $19 on 100 Founder shares for year ending 31-5-07	6½	$10
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000; $25,000	$5,482	31-12-06	Final of 40 cts. making 80 cts. per share for year ending 31-12-06	7½	$11 sellers
William Powell, Ld.	1901	$150,000	15,000	$10	$10	e $4,500	$182	30-6-06	Final of 30 cents making 80 cents for year ending June 30th 1906	10	$8

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. (Plus accrued interest)
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par. (Plus accrued interest)
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 99 (Plus accrued interest)
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	...	Half yearly, January 1st and July 1st	Tls. 105 (Plus accrued interest)
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431.960	Half yearly, June 30th and December 31st	par. (Plus accrued interest)
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½. (Plus accrued interest)
China Light and Power Co., Ltd. 6% Debentures of 1907	....	$500,000	$100	....	Half yearly, Jnne 30th and December 31st.	par.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 5,725 shares unissued.
2 First issue of 60,000 of which 10,411 unalloted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unalloted.
6 1,616 shares unalloted.
7 842 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 0,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 198 shares unissued.
15 22,250 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government-Kuping Tls. 5,000,000.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
Dr Deficit.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, August 31, 1907)

Date of Formation	Capital	Capital paid up	No of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	....	25% for year ending 31-3-09	Belat Tin Mining Co., Ltd	11.25	11.50	$11.25
1907	$300,000	225,000	22,500f*	10	10	....		Bruang Ltd	....	8.50	8.50
1903	£400,000	350,000	350,000a	1	1	....		Duff Development Co., Ltd	1.60	1.7	1.70
1901	$600,000	600,000	60,000	10	10	....	20% for year ending 30-4-07	Bruseh Hydraulic Tin Mining Co., Ltd	....	14.00	14.00
1905	£30,000	30,000	30,000	1	1	....	3/- during 1906	Jeher Hydraulic Tin Mine, Ltd	....	10.00	10.00
1907	$400,000	$375,000	37,500b	10	10	....		Kanaboi, Ltd	8.75	9.75	9.75
1901	£60,000	60,000	60,000	£1	£1	....	1/ interim for 1907	Kinta Tin Mines, Ltd	13.00	13.25	13.25
1906	£100,000	£90,000	90,000c	£1	£1	....		Kledang Tin Mining Co., Ltd	14.00	14.25	14.00
1905	$150,000	99,000	9,900d	10	10	6,000	25% for 1907	Kuantan Tin Mining Co., Ltd	15.25	15.75	15.50
1906	£120,000	£120,000	120,000	1	1	....		Lahat Mines Ltd	....	8.75	8.75
1906	£30,000	£30,000	30,000	£1	£1	....		Malaya and Siam Corporation, Ltd	....	....	£1 12s. 6d.
1906	$450,000	$337,500	45,000	10	7.50	....		Malacca Tin Dredging Co., Ltd	....	6.50	6.50
1906	£250,000	£145,000 }	600,000j	5/-	2/6	....		Pahang Consolidated Co., Ltd	23/	23/6	23/6 prem.
			100,000	£1	£1	....		" " " 7% Pref		....	nominal.
1904	£120,000	100,000	100,000e	1	1	....	4/6 interim for 1907	Pusing Lama Tin Mines, Ltd	20.05	20.50	20.50
1905	£27,000	21,750	21,750l	1	1	....	1/- interim during 1907	Rambutan, Ltd	....	21.25	21.25
1992	£200,000	191,250 }	50,000	1	1	4,873	1/- paid January 1901 }	Raub Aust Gold Ming Co., Ltd, *Fully. pd.*	5.50	5.75	5.75
			150,000	1	18/10	....	1/- " " "				
1805	£40,000	35,200	35,200g	1	1	....		Redhills Tin Mining Co., Ltd	5.50	5.75	5.75
1998	f.2.000,000	1,800,000	18,000	100	100	....	52½% for year ending 31-12-06	Redjang Lebong Mining Co	...	15.00	15.00
1800	$110,000	110,000	22,000	5	5	....	10% for 1907	Royal Johore Tin Mining Co., Ltd	....	....	625.00
1907	£80,000	£60,000	} 40,000	1	1	....		Sempam Tin Mines, Ltd	2.00	2.50	2.25
			40,000	1	10/-	....		" " " "	....	7.75	7.75
1906	$850,000	850,000	85,000	10	10	....	20% interim for 1907	Serendah Hydraulic Tin Ming. Co., Ltd	14.50	14.75	14.50
1899	$230,000	230,000	23,000	10	10	....	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd	....	6.00	6.00
1907	£90,000	70,000	70,000g*	£1	£1	....		Tekka, Limited	12.25	12.50	12.50
1902	£160,000	149,185	149,185h	1	1	....	4/- interim for 1907	Tronoh Mines, Ltd	...	21.75	21.75
								RUBBER			
1905	£150,000	104.937 10/-	{ 46,500i	1	1	....	18% for year ending 31-12-06	Anglo-Malay Rub. Co., Ltd. *Fully paid*	£4. 17s. 6d.	£5.0.0.	£4 17 6
			93,500	1	12/6	....		" " " *Contributory*	....	4.10.0	4. 7. 6
1905	$200,000	105,000	10,500	10	10	....	12½% interim 07	Balgownie Rub. Estate Ltd. *Fully paid*	$24.00	....	$24.00
1904	£30,000	11,125 }	7,000k	1	1	....		Batu Caves Rub. Co., Ltd. *Fully paid*	....	4.17.6	4. 17. 6
			11,000	1	7/6	....		" " " *Contributory*	....	....	4. 5. 0
1903	£70,000	61,000	61,000l	1	1	....	30% for year ending 31-3-07	Bukit Rajah Rubber Co., Ltd	....	6.12.6	6. 1. 0
1906	$150,000	125,000	12,500m	10	10	....		Castlewood Rubber Co., Ltd	10.00	10.25	10.25
1904	£12,000	10,500 }	6,000	1	1	....	15% to 31-3-07	Cicely Rubber Estates Co., Ltd	....	5.0.0	4. 17. 6
			6,000	1	15/-	....	20% to 31-3-07	" " " " 5% *Pref*	....	....	3. 5. 0
1905	£75,000	55,000	55,000o	1	1	....	10% for year ending 31-12-06	Consolidated Malay Rub. Estates, Ltd	3.2.6	....	3 5. 0.
1906	£310,000	227,783 15/-	{ 181,454p	1	1	....	11% or year ending 31-12-07	Highlands & Lowds. Para Rub. Co., Ltd. *Fully paid*	....	....	3 10. 0.
			123,546	1	7/6	....		" " " " *Contributory*	....	....	1 17. 6.
1906	£180,000	£180,000	18,000	1	1	....		Kuala Lumpur Rubber Co., Ltd	1.5.0	1.9.0	1 5. 0.
1906	f.1 75,000	f.117,500	{ 80	f.250	250	....		Langen Rub. and Cocoanut Co., Ltd	....	....	f.250.
			460	f.250	125	....		" " " " " "	....	....	f.125.
			160	f.250	250	....		" " " " " *Deferred*	....	....	f.250.
1906	$250,000	225,000	22,500q	10	10	....		Ledbury Rubber Co., Ltd	14.00	....	$14.00
1895	£50,000	32,332 10/-	{ 10,000	1	1	....		Linggi Plantations Ltd., 7% *Pref*		....	
			9,866	1	1	....	15% for 1906	" " " *Ordinary*	£5.17.6	....	£5 17. 6d.
			10,000	1	1	....			....	....	
			10,000	1	5/-	....				....	£3 0s. 0d.
1906	£300,000	260,625 {	115,000	1	1	....	7½% for year ending 31-12-06	Malacca Rnbber Plantations 7½% *Pref*	1.1.10	1.2.0	1 1. 0.
			140,000	1	1	....		" " Ordinary *Fully paid*	....	17/-	17/-
			45,000	1	2/6	....		" " *Contributory*	....	....	nominal.
1903	£30,000	20,000	20,000r	1	1	....	40% for 1906	Pataling Rubber Estates Synd. Ltd	....	....	8. 5. 0.
1906	$250,000	225,000	22,500i*	10	10	....		Ragalla Rubber Co., Ltd	9.75	10.00	10.00
1904	£20,000	8,794	{ 2,588h*	1	1	....		Sagga Company Limited	2.0.0	....	2. 0. 0.
			12,412	1	10/-	....		" "	....	....	....
1904	$100.000	85,000	850s	100	100	....	20% for year ending 31-1-07	Sandycroft Rubber Co., Ltd	310.00	320.00	$310.00
1898	£30,000	26,762 10/-	{ 26,300	1	1	....	40% for 1906	Selangor Rubber Co., Ltd	18/6	19/6	19/-
			3,700	1	2/6	....		" "		....	....
1903	$250,000	208.000	{ 1,300t	100	100	....		Sing. & Johore Rub. Co., Ltd. *Fully paid*	195.00	....	195.00
			1,200	100	65	....		" " " *Contributory*	160.00	....	160.00
1905	$100,000	100,000	10,000	10	10	....		Sione Rubber Co., Ltd	14.50	....	14.50
1906	£100,000	93,375 }	73,500	£1	£1 }	....		Sungei Kapar Rubber Co., Ltd }	....	....	nominal.
			26,500	£1	£5/				£2.1.0	....	£2 1s. 0d.
1904	£50,000	24,420 }	6,920v	1	1	....		Sungei Way (Selangor) Rub. Co. Ltd	1.17.6	....	1 17. 6.
			35,000	1	10/-	....		" " " *Contributory*	1.10.0	....	1. 10. 0
1904	£60,000	50,000	50,000u	1	1	....	55% for 1906	Vallambrosa Rubber Co., Ltd	....	9.0.0	8 15. 0.
								GENERAL			
1894	£5,377,10.0	£4,648.15/-	7,688	12/6	12/6	£814,11.9	10% dividend for 1905	Bells Asbestos Eastern Agency, Ltd	....	....	7.00
1898	$225,000	225,000	4,500	50	50	112,500	15% & 2½% bon. for yr. end. 31-12-06.	Fraser & Neave, Ltd	147.50	150.00	147.50
1865	$10,000,000	10,000,000	80,000	125	125 }	10,000,000a* 11,000,000b* 250,000c*	£1 15s. & bonus of £1 at ex. 2s. 3⅓d. making $40.80 for 1906	Hongkong & Shanghai Bankg Corptn	....	....	670.00 ex new issue
1905	$2,400,000	2,400,000	{ 18,000	100	....	40,000	7½% for year ending 31-10-06	Howarth Erskine, Ltd	155.00	170.00	155.00
			6,000	100	....	....	7% for year ending 31-10-06	" " 7% *Pref*	120.00	....	120.00
1896	$1,000,000	1,000,000 }	6,000	100	100	600,000	10% for year ending 31-12-06	Katz Brothers, Ltd. *Deferred*	....	....	135.00
			4,000	100	100	....	8% " " " " "	" " 8% *Cum. Pref*	....	....	nominal.
1901	$34,000	34,000	3,400	10	10	....	20% for year ending 31-10-06	Maynard & Co., Ltd	....	....	21.00
1899	$875,000	875,000 }	6,000	100	100	150,000	5% for year 1906	Riley, Hargreaves & Co., Ltd	....	130.00	130.00
			2,750	100	100	....	7% for year 1906	" " " " 7% *Pref*	110.00	112.50	112.50
1903	$600,000	240,000	24,000x	10	10	....		Singapore Cold Storage Co., Ltd	....	7.00	7.00
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-06	Singapore Dispensary Ltd	....	55.00	55.00
1884	$200,000	200,000	2,000	100	100	35,000	20% for year ending 31-12-05	Straits Ice Co., Ltd	....	140.00	140.00
1890	$500,000	500,000	5,000	100	100 }	400,000 241 075d*	5% interim during 1907	Straits Steam Ship Co., Ltd	195.00	....	195.00
1904	$40,000	$30,280	{ 2,535y	10	8	....		Straits Tobacco Factory, Ltd	....	6.00	6.00
			1,000	10	10	....		" " " "	....	....	nominal.
1887	$3,000,000	2,500.000	250,000z	10	10 }	1,050,000 1,037 084e*	10% & 5% bon. ½ yr. end. 31-3-07	Straits Trading Co., Ltd	56.25	57.00	66.50

DEBENTURES

Name	Buyers	Sellers	Closing Quotations
Howarth Erskine, Ltd. 6% .... $ 600,000	....	....	3% prem.
Singapore Municipal 6% 400,000	....	....	20% prem.
" " 5% 1,878,000	....	....	3% prem.
" " 4½% 1,600,000	....	5%	5% prem.
" " 4% 602,900	....	....	2% dis. nom
Riley, Hargreaves & Co., Ld. 6% 225,000	....	.3%	3% prem.
Tanjong Pagar. Dock Board 6% 250,000	....	....	3% prem.
" " " 5% 1,050,000	....	....	par.

a 50,000 unissued
b 2,500 "
c 10,000 "
d 5,100 "
e 22,000 "
f 5,250 "
g 4,800 "
h 10,815 "
i 10,000 "
j 9,500 "
k 12,000 "
l 9,000 "

m 9,000 unissued.
n 2,500 "
o 20,000 "
p 5,000 "
q 2,500 "
r 10,000 "
s 150 "
t 300 "
u 1,645 "
v 8,080 "
w 10,000 "
x 36,000 "

y 465 unissued.
z 50,000 "
a* Special Gold Reserve Fund
b* Silver Reserve Fund.
c* Insurance Fund.
d* Sundry Reserves.
e* Sundry Reserves.
f* 7,500 unissued.
g* 20,000 "
h* 5,000 "
i* 2,500 "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, AUGUST 1907

STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVED FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2800	-Y- 10	-Y- 10			31-12-06	8%	for 1 year	10 Sellers.
Club Hotel, Ltd.	185,000	1850	100	100	3,000	-Y- 943.52	31-3-07	7%	for 1 year	80 Sellers.
Grand Hotel, Ltd.	500,000	5000	100	100		-Y- 23,011.87	30-6-07	6%	for ½ year	150 Sales.
Helm Bros., Ltd.	186,000	3720	50	50	22.500	-Y- 2,916.83	31-12-06	20%	for 1 year	85 Sellers.
Cangfeldt & Co., Ltd.	150,000	1500	100	100		Dr. 20 304.15	31-12-06		for ½ year	45 Sellers.
L. Nickel & Co., Ltd. †	500,000	20000	25	25		1,470.97	31-10-06	16%	for 1 year	41 Nominal.
Yokohama Engine and Iron Works *	500,000	10000	50	50	50,000	-Y- 12,477.04	31-5-07	35%	for 1 year	90 Sellers.
Oriental Hotel, Ltd., Ordinary }	250,000	3000	50	50	62,285.42		31-8-06	15%	for 1 year	75 Nominl.
Oriental Hotel, Ltd., Preference }		2000	50	50				8%	for 1 year	64 Sales.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10000	100	100			First Year.			105 Sales.

† 285,000 unissued.

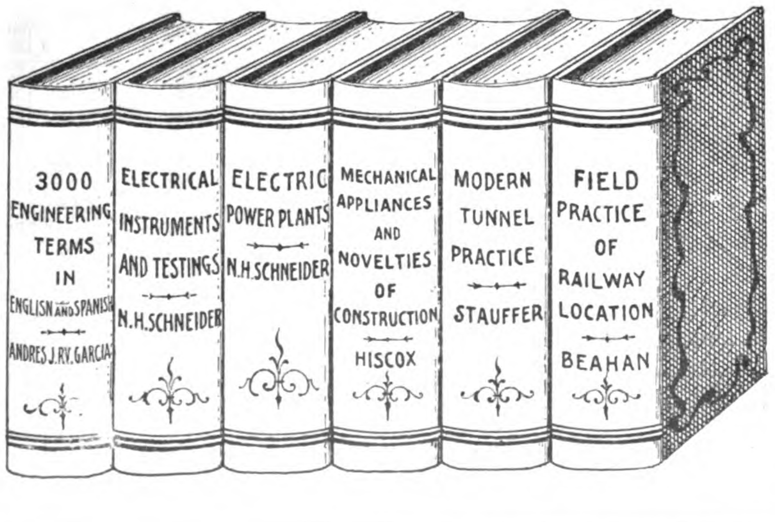
‡ 475,000 unissued.

*-Y- 390,000 issued.

110,000 unissued.

DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	85 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	105 Sales.
C N'ckel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	110 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	DIVIDEND PER ANNUM.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 95.50
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 93.50
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 93.50
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 87.00
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 87.00
Imperial 5% Bonds (Goburi)	100	100	5%	March and Sept.	,, 87.00
Imperial Government 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 87.00
Kobe Water Works Bonds	100	100	6%	June and Dec.	,, 98.00
Osaka Harbour Bonds	100	100	6%	June and Dec.	,, 98.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 98.00
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 101.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 102.00
Sanyo Railway Company Debentures (2nd issue)	100	100	6%	April and Oct.	,, 98.00
Tokyo Stock Exchange Company	50	50	40%	June and Dec.	,, 162.00
Hokkaido Colliery (Tanko) Steamship Company Limited	50	50	15%	July and Jan.	,, 114.30
Hoden Petroleum Company, Limited	50	50	30%	April and Oct.	,, 141.00
Yokohama Electric Tramway Company, Limited	50	50	7%	July and Jan.	,, 49.90
Tokyo Railway Company Limited	50	50	9%	June and Dec.	,, 74.95
Keihin Electric Railway Company, Limited	50	50	13%	June and Dec.	, 100.00
Hokkaido Hemp Weaving Company, Limited	50	50	13%	July and Jan.	,, 61.00
Kanegafuchi Cotton Spinning Company, Limited	50	50	20%	July and Jan.	,, 126.80
Tokyo Cotton Spinning Company, Limited	50	50	20%	July and Jan.	,, 87.00
Fuji Gassed-Yarn Company, Limited	50	50	25%	July and Jan.	,, 121.50
Nisshin Cotton Spinning Company, Limited	50	12½	—	——	,, 14.00
Fuji Paper Mill Company, Limited	50	50	10%	June and Dec.	, 58.00
Yokohama Dock Company, Limited	50	33	15%	June and Dec.	,, 70.00
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 113.00
Nippon Sugar Refinery Co., Ltd. (Tokyo)	50	50	20%	June and Dec.	, 94.75
Dai Nippon Beer Brewery Company, Limited	50	50	15%	July and Jan.	,, 114.50
Tokyo Gas Company, Limited	50	50	15%	July and Jan.	,, 99.80
Kirin Brewery Company, Limited	50	50	—		,, 90.00
Tokyo Electric Light Company Limited	50	50	10%	June and Dec.	,, 70.00
Yokohama Electric Light Company, Limited	50	50	15%	July and Jan.	,, 84.00
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	, 122.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 82.50



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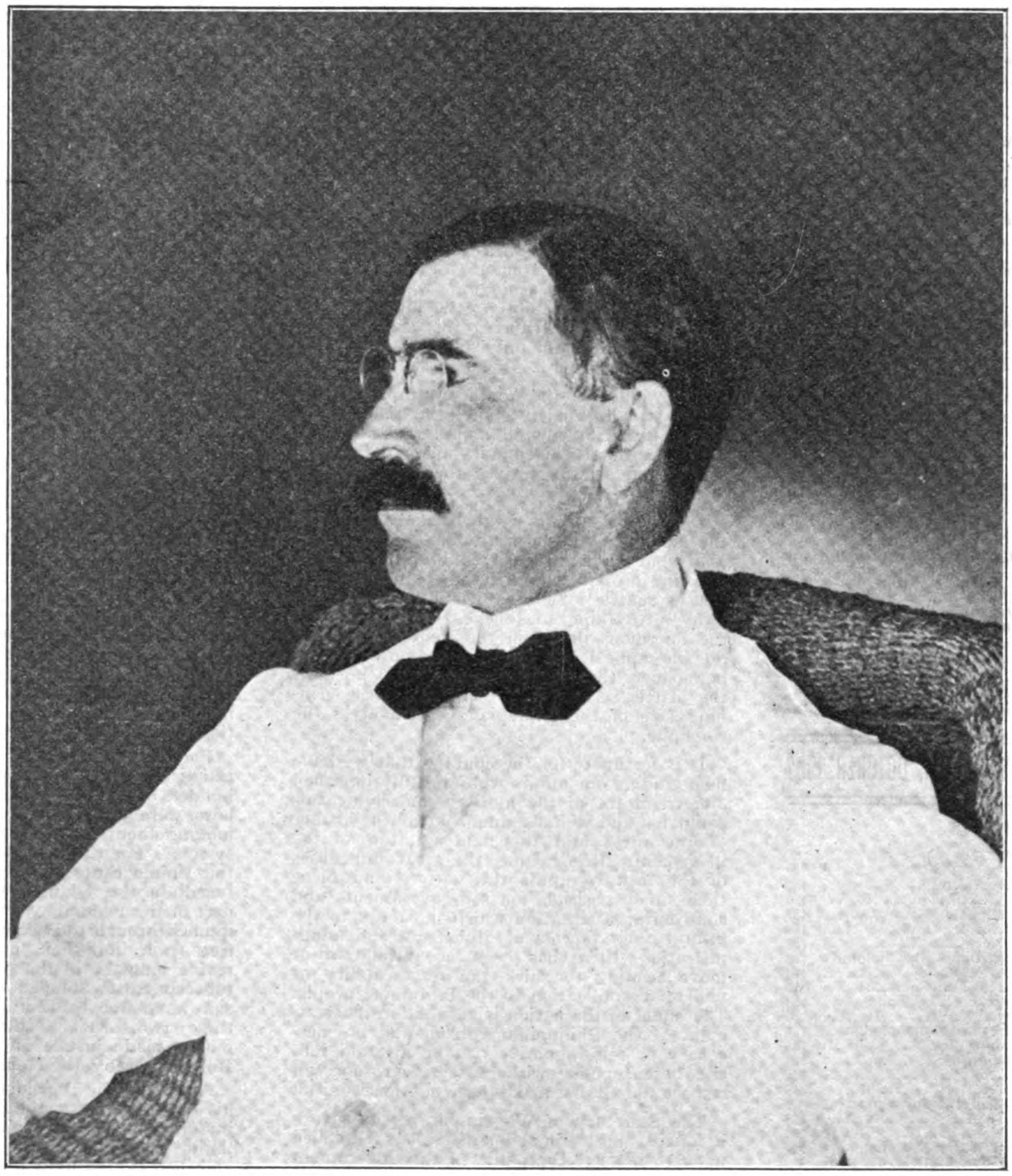

MR. RICHARD T. LAFFIN

Formerly Vice-President and General Manager of the Manila Electric Railroad and Light Co. Who Resigned Recently on Account of Ill-health

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

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THE SALE OF THE PHILIPPINES TO JAPAN

The last two years has witnessed the growth of a sentiment in the United States favoring the sale of the Philippines to Japan as the only solution of our Insular and Far Eastern problem. The frequent comment in the leading journals of the country has lent an exaggerated significance and importance to the proposition, which when viewed from a patriotic and practical standpoint is not only misleading, but highly prejudicial to the best interests of the nation and our prestige in the Orient.

To the foreign and those unfamiliar with the facts underlying the proposed sale of the Islands to Japan, it would appear at first sight that the question had been seriously entertained by our Government, when, as a matter of fact the sentiment to this end has been fostered by a clique of shrewd and scheming capitalists representing two of the leading protected interests of the country. To save their industries from a purely imaginary competition from Philippine products, they are apparently willing to sacrifice the honor of the nation in its dealings with the Philippines and our prestige with the world at large. It is nothing to them whether we comply with our obligation to the Islands, or whether we lose "face" and our trade in the Orient, so as their beet sugar and tobacco factories are saved from the possible competition of the Philippine products. This selfish motive, and this only, is at the bottom of all the agitation favoring the sale to Japan. By the aid of a powerful organization supplied with liberal campaign funds, and the maintenance of a strong and shrewd lobby at Washington, while carefully concealing the real motive, the interests have been insiduously advancing this argument for over two years as the only solution to the Philippine problem.

Their appeal to the American people for support in this campaign ignores the higher attributes of patriotism and honor, and presumes that the nation is guided in its policy by the same sordid and selfish motives that govern their own actions.

Dollars and Cents is their cry! See what the Islands have cost us to date, $400,000,000! and what have we received in return! It is a losing proposition! Let us get from under! Let us scuttle! Sell the Islands! Give them away! Anything to relieve the nation from the enormous drain on the Federal treasury. So the appeal has found an echo in many newspapers throughout the country, who treat the matter seriously, and fail to see the grinning face of the Ethiopian gentleman in the woodpile.

It is fortunate for the country that we have men guiding our affairs who are fully informed and cognizant of the motives underlying this campaign and who are unmoved by the clamor of the press and the paid agitators of the movement. Recognizing the great difficulties of the task to uplift the natives and place them in a position for self-government, and confronting a situation which must tax to the utmost their powers of diplomacy and administration, there has been no intimation or move tending to shirk the responsibility or violate the obligation to the Philippine people. The honor of the nation is at stake in its treatment of the Philippine problem and no mercenary or selfish motive can be injected into the present policy without sacrificing our self respect and all that makes for true Americanism.

The Secretary of War in his recent speech in Tokio, and again at Shanghai, has felt called upon to reassert the policy of the Government towards the Islands, reiterating the sentiments which have been time and again expressed by him in dealing with this subject. It is time that his words be taken seriously, and that a quietus be given to this ever recurring topic. His words are a direct answer of the present Administration and a forecast of the future attitude of our Government to the agitators at home and in the Philippines who are seeking to embarrass and hinder our work. It says in effect to all the world: "We are in the Philippines to stay until such time as we consider it proper to comply with our obligation, and turn the Islands over to the proper owners. Nothing can swerve the United States from the Policy it has laid down. No sacrifice of national honor or pride will be made by bartering the Islands to Japan or any other nation, and we will defend our position with all the resources at our command.

It is a fitting answer to those whose patriotism is synonymous with their pocketbook, to those natives in the Islands who interpret our treatment of them as sign of weakness, and to the Japanese and other foreigners who may have cherished the hope that our altruism was only a sham and that we could be bought off for a few paltry dollars.

To relinquish the Islands at the present time without having accomplished our mission, or having proven the practicability of our ideas in dealing with the question, would lose for the nation all the prestige gained through their acquisition and the outcome of the Spanish war. It would be a tacit admission to all the world that we are a nation of braggarts and incompetent to handle a situation that any little fourth rate European power would be only too glad to take over and manage successfully. It would forever lose for us our standing in the Orient and gradually drive our trade from the shores of Asia. Our proud position amongst the nations would be sacrificed and in its place we would become the butt and ridicule of the world. The mere agitation of the question in the press is to be deprecated as it tends to create a false impression amongst a people who look on it as a confession of weakness. The Filipinos, Chinese, Japanese, and other Orientals interpret the discussion to our disadvantage, and attribute to us a sense of fear for the future.

As the question is one arising from purely mercenary motives the answer should be based on the same selfish grounds. The interests behind the agitation claim that the Islands are a losing proposition, and for that reason we should sell them. Of course they are a bad investment, but who is to blame? They do not tell the people that it is due largely to their own efforts in thwarting equitable legislation that the Islands are not more prosperous. It is axiomatic that you can't knock a man down, bind his hands and feet and stand over him with a club, and expect the poor devil to make any effort to protect himself. All he can do is to throw himself on the mercy of his captor. Neither can a country prosper and develop its natural resources and riches if it is handicapped by adverse and discriminating legislation in whose enactment the inhabitants have had no voice or representation. This is the situation in the Philippines to-day.

For the sole benefit of two or three transportation companies and some misguided shipbuilders of the East, the United States shipping laws were extended to the Philippines, thus making them in effect a part of our Federal system. For the benefit of the labor element, the United States immigration laws were fastened on the Islands, again making them a part of the Federal system, but when the Philippines through the Secretary of War requested free trade for their products, which would revive industry in the country, the sugar and tobacco trusts stepped in and said, No. You can have free trade in all other products but these two. And a subservient Senate Committee made justice impossible by killing the Bill, passed by the House of Representatives.

Although the President urged Congress in his annual message to modify the land laws in force in the Philippines—which at present limits a corporation to holding 2500 acres—and increase the limit to 25,000 acres, the same interests steadily blocked any action in this direction.

In every possible manner they have made it difficult for large commercial concerns to engage in agricultural enterprises, and after several years of successful obstruction on the part of their lobby at Washington, which has brought about the present depression in the Islands, they cynically turn to the public and say," The Islands are a bad investment, let us sell them or give them away."

The Philippines are not a bad bargain. They are not a bad investment. No country in the world offers such inducements for the investment of capital, if the laws are passed which will permit their development. The lands are there, the labor is there, and only capital is lacking. But capital will not enter, until the Islands are given a fair chance and the limit on the lands increased. Keen interest is manifested by financial circles in the United States in the Philippines, and capital is slowly going into such enterprises as are not affected by adverse laws. The mining industry shows signs of a healthy growth, and in the next year or so, there will be some millions of American capital invested in these ventures. But the great wealth of the Islands lies in agriculture, sugar, tobacco, hemp, etc., and when the American market is opened to these products and the land law repealed so that some inducement will be offered capital the Islands will soon recuperate and will prove one of the best investments the United States has ever made.

In favoring the sale of the Islands to Japan the sugar and other interests have overlooked some important economic points, which would act as a boomerang if their proposition was carried out.

Hemp is a Philippine monopoly. It can not be grown profitably in any other part of the world. The United States is the largest consumer of this staple. The hemp market of the world was formerly held by London, and the American purchaser had to pay tribute to the British interests who monopolized the transportation and marketing of the fiber.

By abolishing the export duty on direct shipments to the United States the market was shifted from London to New York, thereby saving the American manufacturer many millions of dollars.

Let us suppose that the United States would consent to the sale of the Islands to Japan for say $50,000,000. The present financial condition of this empire, and the propensity of the government to monopolize the various staples, such as salt, camphor, tobacco, sugar, etc., would lead to the inevitable monopolization of the hemp industry also. An export tax of $25.00 per ton would not be too much to load on this staple, which the world must have, and the consequence would be that our cordage manufacturers would annually pay into the Japanese treasury over $2,500,000, or more than sufficient to pay the interest on the loan which would be floated for their purchase.

The beet sugar interests in advocating the transfer of sovereignty to Japan are influenced by their fear of a great development of the Philippine sugar industry under free trade with the United States. Stimulated by the fiction of cheap labor, they claim that the home industry will be wiped out in a few years. Under American rule this is impossible, as the wage rate is steadily advancing to the unit of the dollar, and the demand for labor in other industrial enterprises limits the supply.

Under Japanese rule it would result that the native sugar industry would be exploited under government subsidies and encouragement as in Formosa, the wage rate would decline to the level of Japan or ten cents a day, and the cost of production decreased to a lower basis than in Java, and sugars dumped on the world's markets at a cost of a cent a pound. Only by a higher protective duty on raw sugars in the United States could the beet sugar industry withstand the competition. It is apparent that in advocating this policy, they are defeating the very end they seek to attain.

Aside from the political and economic principles, there are deep religious reasons which make such a transfer abhorrent and impossible to a Christian people. To turn over several million Chirstian souls to the tender mercies of an anti-Christian nation would be the crime of the centuries. The Christian influences and work of 400 years would be sacrificed.

AGRICULTURAL BANKS

The future of every fertile section of the Orient will largely depend upon the facilities provided to supply capital for the development of the natural resources. At the present time no system has been inaugurated whereby the struggling planter or miner may secure an advance on the value of his holdings at a reasonable rate of interest, no matter how secure the investment may be considered or how seriously the advance is necessary for proper and legitimate development. The banks throughout the area referred to have their hands full in meeting commercial demands so that the necessity of institutions devoted entirely to the encouragement of the planters is apparent everywhere. Movements along these lines are noticeable and if success is attained we do not hesitate in prophesying an era of development throughout eastern Asia that will astonish the world.

In Siam the agitation is gaining strength as may be seen by the comment of the Siam *Free Press* on the subject. The *Free Press* says:

"In a recent issue of this journal we referred to the benefits that would accrue both to the Government and the inhabitants of Siam through the establishment of an Agricultural Bank having branches in convenient centres of the country to aid the paddy-planter in carrying on his work with greater skill and diligence and in increasing the area under cultivation. Agricultural industry has been greatly promoted in this way in other countries, and the system is now being adopted by various Governments throughout the East, as a most profitable means of promoting agricultural and mining industries.

"We read in the *Straits Times* that, at the last meeting of the Perak State Council, the question of establishing an Agricultural Bank was again urged as the best means of developing the State and turning its resources into profitable account. It was further pointed out that the establishment of an Agricultural Bank would be an immense boon to miners, in opening up the mineral wealth of the country. The present state of affairs under which the large sums of money made by Chetties go out of the country, practically nothing being spent by them in helping to open up Perak, was condemned. The Council expressed itself as unanimously in favor of such an institution, and considered that if the Government gave $2,000,000, it would be quite sufficient an amount with which to start an Agricultural Bank.

"In discussing the proposal, the Pinang *Gazette* states that, while they have so often urged the establishment of an Agricultural Bank, both for the F. M. S. and the Colony, they failed to see what use an Agricultural Bank would be to miners. ....What is wanted is an institution that will advance money to the ryots on the security of their crops at a reasonable rate of interest, and thus save them from the clutches of the Chetty or Bengali moneylender.

"All this should prove very interesting for the promoters of agriculture in this country, and it is to be hoped the question will be given due consideration by the proper authorities."

In the Philippines an Agricultural Bank has been authorized and will be established in the near future.

The Chinese government is considering a similar government institution and the Japanese have already taken the initiative and with remarkable success.

MOSQUITO NETS MAY SOON BE RELEGATED

The rubber growing industry is very liable to receive a marked impetus when it becomes generally known that the mosquito and the successful rubber planter cannot thrive in the one and same community. A correspondent of a Singapore newspaper has discovered that a belt of rubber plants surrounding a house situated in a mosquito infected district has a discouraging effect on the bloodthirsty winged cannibals from the low areas. To substantiate this claim made by the Singapore correspondent comes the declaration of a planter near Perak who recently opened a rubber ranch where the land is low and swampy. He declares that the section, formerly the headquarters of legions of mosquitoes, is now so depleted that specimens are rare and bring a very high premium. This is all due to the fact that the rubber plants are flourishing.

We may even expect in the near future that the complacent, retired capitalists of New Jersey may be induced to participate in the rewards offered by the rubber industry in the Far East from a monetary view point and at the same time avenge themselves upon the tribe that has brought their well beloved state into disrepute.

The *Pinang Gazette* expresses its appreciation of the rubber growing industry on behalf of the Europeans on the ground and says:

"If rubber is going to enable half the Europeans to retire from the region of mosquitoes in affluence, and abolish the plague for the remaining half who from necessity or choice stop here, it is a virtue like mercy, twice blessed.'

TYPHOON SHELTER FOR HONGKONG

The severe loss of shipping at Hongkong from the disastrous typhoon of 1906 and the exposed state of the harbor should similar storms visit that important port, has roused the businessmen and officials of the colony to a realization of the necessity of proper provision against a recurrence of similar disasters. Plans have been prepared covering a scheme the cost of which would reach at least $1,500,000 but no definite action will be taken by the government until these plans are revised and, if consistent with the proper protection of shipping, the estimates reduced. In his recent speech before the legislative council of Hongkong His Excellency, the governor, in reference to this necessary feature of the public works for the year said:

"There is one item in the vote for next year to which I would invite your particular attention, to the typhoon shelter. (Applause). Sir Matthew Nathan promised there would be no undue delay and that it was intended to make a beginning this year. The delay has been occasioned, firstly, by the great amount of discussion as to where it should be, and secondly, on account of the complicated plans which had to be prepared before the scheme could be laid before the Government. The plans which have been prepared involve a cost of $1,400,000. They are now being revised to see if we can produce a scheme which will not involve us in such a heavy expenditure but will provide a serviceable breakwater giving substantial protection to craft and being capable of development into the larger and complete scheme. Apart from the promise in the name of the Government made by my predecessor I submit that a second shelter for small craft is most essential in this colony which depends so largely on its shipping and trade and is subject to cyclonic storms. I have placed on the estimates this year the comparatively small sum of $25,000 but I shall not hesitate to ask your assent to an increase of the vote either from current expenditure or even from the reserve fund if the circumstances permit. That would be with the object of carrying it out in a reasonable time and not hanging it up for a number of years."

EAST AND WEST CARNIVAL

An organization known as The Philippines Carnival Association has been organized for the purpose of arranging for a carnival to be held in Manila during the first week of February 1907. It will be known as the East and West Carnival and will have for its purpose the entertainment of the citizens of the neighboring countries and colonies as well as the inhabitants of the different islands of the archipelago. The climate in Manila during the month of February is particularly adapted to outdoor celebrations, being perfectly dry with most comfortable evenings. Special rates are being arranged so that the residents of the different Oriental ports may be able to take in the festivities at the least possible cost.

The scheme of the festivities as outlined by the committee includes the selection of a monarch crowned King of the Orient with his headquarters at Manila. He is enjoying this distinction to the best of his ability on the morning of February 3rd when the King of the Occident arrives in the harbor on a visit to his oriental majesty. He is met in the harbor on board his ship by the King of the Orient and is given the freedom of the city. On the follow-

ing day there will be a monster parade in which both courts and their retinues participate. On the third day the followers of each monarch will contend for supremacy in feats of strength and other athletic exercises for prizes. At the conclusion of these contests, King Carnival with an enormous host arrives and declares that his authority is supreme whereupon the Kings of the East and the West disappear and the city is given over to King Carnival and his gay retinue. The festivities will conclude with a grand carnival ball. At an hour indicated by the ringing of bells and the firing of guns the streets will be cleared for the maskers during the festivities.

Captain G. L. Langhorne, Aide de Camp to General Wood, is president of the association and the project is receiving liberal support from the business men of the islands.

President Roosevelt has been asked to cooperate by having the Armada in Manila bay during carnival week and to invite participation by foreign warships in Far Eastern waters.

PHILIPPINE SUGAR COMPROMISE MEASURE

It is a source of gratification to THE FAR EASTERN REVIEW to be in a position to announce on the authority of Secretary Taft that the administration expects to secure a compromise measure at the next session of congress in the form of a limited free entry of Philippine sugar and tobacco into the United States. This declaration was made in his message to the delegates at the opening of the Philippine Assembly and follows:

"Another difficulty * * * * in preventing material progress has been the failure of Congress to open the markets of the United States to the free admission of Philippine sugar and tobacco. In every other way Congress has shown its entire and generous sympathy with the policy of the administration, and in this matter, the popular branch of that body has passed the requisite bill for the purpose, by a large majority. Certain tobacco and sugar interests of the United States, however, succeeded in strangling the measure in the Senate Committee. I have good reason for hope that in the next Congress, we may be able to secure a compromise measure which shall restore the sugar and tobacco agriculture of the Islands to its former prosperity, and at the same time by limitations upon the amounts of importation allay the fears of injury on the part of the opponents of the measure. Still the delay in this much needed relief has greatly retarded the coming of prosperous times and has much discouraged supporters of our policy in America who have thought this indicated a lack of national purpose to make the present altruistic policy a success."

In the August number of THE FAR EASTERN REVIEW, we drew attention to the advisability of such a course on the part of the friends of the island industries in order to disarm the sugar trust and remove all cause for alarm on the part of those who were being misled into the belief that Philippine sugar would prove a menace to the home industry. The following is an excerpt from the editorial referred to:

"Even with the tariff removed it would be impossible for the Philippines to supply the United States with the necessary quantity of sugar to make up the annual shortage within the next fifty years, if indeed the industry in the islands could ever be relied upon for half that amount.

"When the Philippines sugar bill was relegated to its living tomb in the committee room the opponents of the measure had practically admitted all the points in the arguments of the Philippine delegation with the exception of the impossibility of the Philippines flooding the United States with sugar should free entry be granted. It might have been an easy matter to arrange a compromise on a basis of the removal of the duty on a limited amount of sugar annually at that time but the administration, believing that the fight was won, refused to consider such a proposal, and when the Trust discovered how very easy it was to smother all legislation in committee later, refused to discuss the subject further.

"While it may be natural to a large constituency in the United States to believe that the Philippines would flood the American market with sugar and destroy the home industry those familiar with conditions in the islands are satisfied that such a fear is groundless. However, it may be that in order to allay the suspicion that the friends of Philippine sugar are conspiring to ruin the industry in the United States, a compromise may be effected at the next session of congress.

"There is reason to believe that in the coming battle the sugar trust will find the manufacturing interests arrayed with the friends of Philippine sugar. This was not the case during the former engagement. During the last year the attention of the manufacturers has been directed to the promising market in the Philippines under more favorable tariff regulations governing the importation of Philippine products, and from all reports they have expressed themselves in favor of removing the barriers altogether or on a limited quantity to a degree consistent with the preservation of the industry in the homeland."

And further, as demonstrating the patriotic attitude of Philippine Americans on this subject THE FAR EASTERN REVIEW concluded:

"Whatever may be the outcome of the fight, it promises to be a battle royal. And the Philippine exiles have the consolation, no matter what may be the outcome, that their campaign has been carried on in a spirit of fairness, desiring always to further the interests of the Philippines but not at the expense of any American industry or of the American people."

IRRIGATION WORK IN SIAM

The Royal Irrigation department of Siam is now constructing large sluice gates to prevent the regular overflow from the Spring tides to Klong Banghea and to regulate the supply of water through retention during the rainy season which under natural conditions rushes seaward and all benefit therefrom is lost. Last month, says the Bangkok *Times*, the Stoney sluice gates ordered by the department arrived at Bangkok and further explains the purpose for which they are being erected at the entrance from the sea to Klong Banghea. According to the *Times* this Klong is some 15 meters wide and at spring tides overflows into the adjacent paddy fields spoiling the same. So much so in fact that many cultivators have removed elsewhere. At least 200,000 rais of land has been spoilt in this way. The water from the territory of the Menam Chow Phya and the Bangkapong river runs along Klong Banghear, traveling to this Klong by means of Klong See Yek and Klong Song, and at the times when people want water it is going to the sea.

These sluice gates are designed to prevent this. In the high water season the gates will be opened as often as desirable, but in the rainy season when the water is not yet high, and people want to retain all the water there is, the gates will be closed and the sea water kept out.

This is not irrigation, but simply drainage and retention, and the scheme has become more important since the Irrigation Department has closed all the outlets to the Menam and Bangkapong rivers. The sluice gates will have a foundation of ferro concrete, upon which the steel frames of the gates will rest. There will be four sluices and each gate is six metres wide and deep. They are supplied by Messrs. Ransome and Napier of London, the patentees. Unlike ordinary sluice gates which can only be opened when the water on either side is at equal level, the Stoney gates can be opened at any time and against any pressure.

The work of erection will take about three or four months, and will be conducted by one of the Department's engineers who, while in Europe on leave, visited the works of the Company supplying the gates in order to become familiar with the process of erection.

In order not to interfere with the trade along the klong a small lock will be constructed near the gates so that boats may pass always.

MONUMENT TO ENGLISH ENGINEERING AND CONSTRUCTION IN JAPAN

Among the few railway bridges exposed to the full force of the fury of the recent floods in Japan, that stood the test, is the one built by British engineers, forty years ago at Kawasaki. There have been many floods that raged against this substantial structure but at no time has it been affected. When the building of this bridge was contemplated the Japanese did not believe that any structure could withstand the fury of the Rokuge river which it spans in the rainy season and they proposed the construction of a temporary bridge at the least expense so that if it were carried away the loss would not be great and it could be easily replaced. In the floods that have but recently destroyed millions in Nippon and paralyzed railway traffic for a time, the Kawasaki bridge stands out as a remarkable monument to substantial British construction in the far east.

AMERICAN EXPANSION PAYS

The Mining and Scientific Press does not see any dire calamity in American expansion. Instead of listening to the "Antis" and calamity howlers, it has turned to the trade reports and there finds all the necessary consolation to sustain it in these days of doubting Thomases and worried Nancies. *The Press* says:

"Between the United States and her noncontiguous territories there is a trade amounting, in 1907, to $67,250,586 of exports and $74,807,690 of imports, exclusive of the $18,583, 702 worth of gold shipped into the United States from Alaska. That northern territory took nearly $4,000,000 worth of iron and steel manufactures, chiefly machinery, in 1907. The imports are three times and the exports six times as much as they were ten years ago. Manifestly Alaska, Hawaii, Porto Rico, and the Philippine Islands afford openings for a further expansion of trade."

RAILWAY MILEAGE

Consul W. C. Teichman, of Eibenstock, quoting from statistics recently computed and published by a German periodical for railway science, says that they develop the remarkable fact that the mileage of railroads in the United States alone exceeds that of any other country in the world, and also that of entire Europe. He summarizes:

The total length of the railways of the world on January 1, 1906, is declared to have been 563,771.7 miles (English) or, in the figures given 905,695 kilometers, of which the United States represents 215,713.39 miles (351,503 kilometers) and Europe 192,247.52 miles (309,393 kilometers), resulting in an American lead of about 23,500 miles over Europe. The total mileage on the American continent is estimated to be more than one-half of that of the entire world.

Railway construction during 1905 added 12,524.33 miles (20,156 kilometers) to the world's total mileage, 2,485.48 of which were in Europe alone, where Germany shows the comparatively largest increase—six times in excess of that of Great Britain. Considerable progress is now being achieved in the building of additional railways connecting German-African cotton and mining districts in the interior of Africa with the seacoast.

The report calculates that the entire capital invested in the construction of the world's railroads amounted on January 1, 1906, to 182,000,000,000 marks or $43,310,000,000.

COCOANUT PLANTATIONS IN MALAYSIA

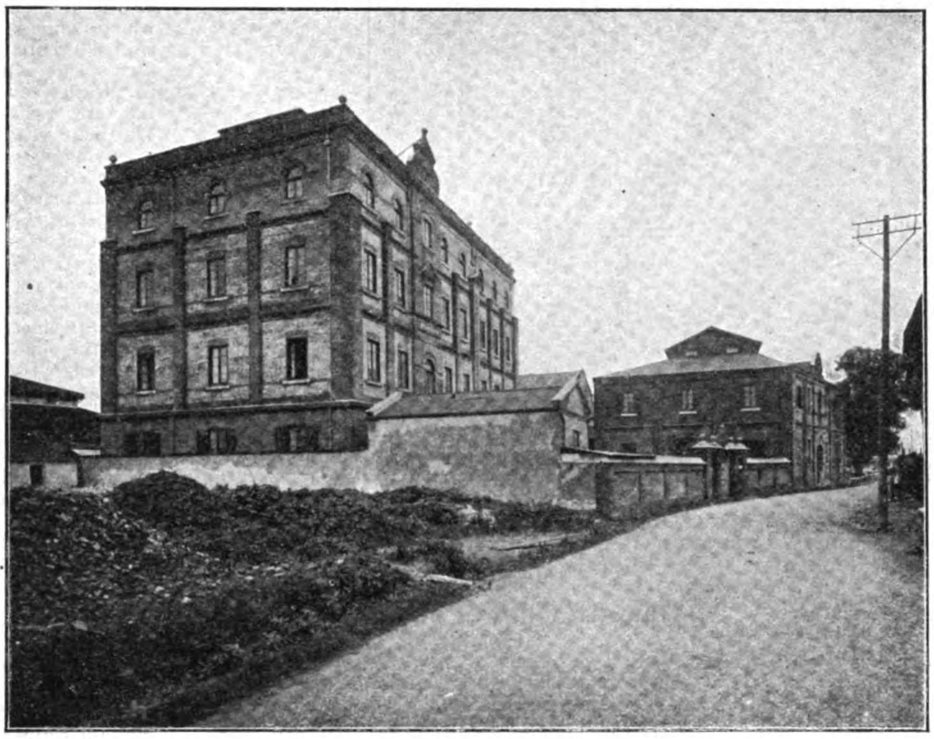
The value of cocoanut estates in the Federated Malay States is returned by L. C. Brown, the official in charge of the plantations, as about $20,000,000 (Malaysian dollar=56.7 cents), Perak holding pride of place in the published statistics. Although it is gratifying to be able to state that cocoanut planting still finds a certain amount of favor among the native community, he states that the further extension of the cultivation is not so promising or making the strides which, with greater facilities from government, it might do. The higher quit rent has proved detrimental as regards the extension of products other than rubber.

THE LEE DAH FLOUR MILL, SHANGHAI

The Lee Dah Flour Mill, the most recently built among the mills in Shanghai, is conveniently situated on the Soochow Creek at Jessfield, and is the property of a purely Chinese Company with Messrs. Lee Yuen-shun, Wong Yi-ting and Koo Hin-yik as directors and Mr. Yuan Pao-san general manager.

The capital of the Company is Tls. 300,000.

The mill building, godown, engine and boiler rooms, are made of red and blue bricks and are lighted throughout by electricity from a private plant belonging to the company.



FRONT VIEW OF THE LEE DAH FLOUR MILL AT SHANGHAI WITH LARGE WHEAT GODOWN TO THE RIGHT

The machinery, which consists of twelve double stands of rolls and the usual cleaning and grading machinery, was supplied by Messrs. Barnard and Leas Manf'g Co. of Moline, Ill., U. S. A., for whom Messrs. Fobes & Co. are the local agents, and was erected under the supervision of Mr. H. P. Stagg of Springfield, Mo., who is to be congratulated on the smooth running of the mill since it was opened on the 28th of May last.

The capacity of the mill is 400 bbls. of flour per day, but the buildings and engine (250 H. P.) are made with a view to increase this to 800 or more barrels.

Within a fortnight of the opening day the mill developed two important points that reflect credit upon the builders and miller sent out to erect the machinery, and whose only assistance was Chinese.

(1) A capacity of 10% over the guaranteed output of 400 Bbls.

(2) The standard of 4.29-100 bu. of wheat to a barrel was reached and has been maintained under the moist conditions of June weather.

Two, three, or four grades of flour may be produced, as required, the machinery being so arranged that the miller in charge can, from a single place on the first floor, examme the wheat in the various stages of cleaning, grinding, separating, and grading, and immediately determine if any machine is at fault in doing its part of the whole process. Milllers will readily see the great advantage of this feature, especially where the employees are all Chinese.

There are now seven roller flour mills in Shanghai, with a combined daily output of 12,000 sacks of 50 lbs. per day.

Half the wheat used in the Lee Dah Mill is imported from America, the other half coming from the province of Shantung.

In connection with this mill and with milling in general in China, the following notes will be of interest.

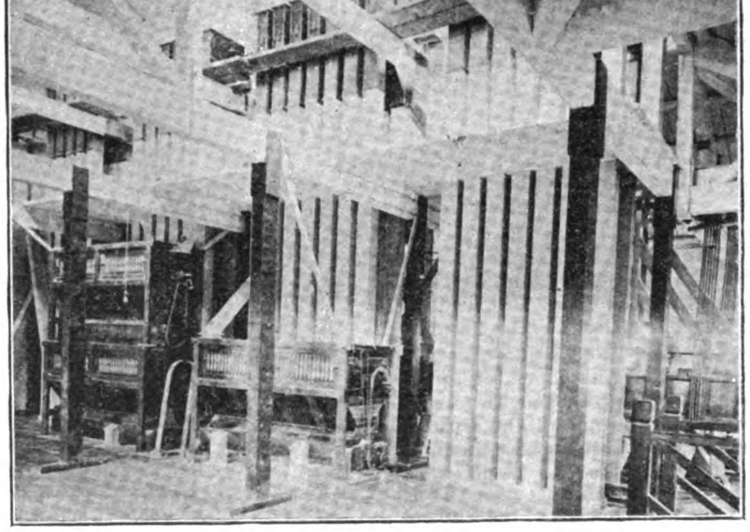
China is looked upon as a country of cheap labor, but it is doubtful if it will apply to the running of flour mills. The Lee Dah mill employs a total night and day gang of 40 laborers.

In the main mill 32 as against same mill in U. S. 14; in the engine and boiler room 8 against 4 in the U. S.

The wheat and flour is handed from the river front, in and out of the warehouse by contract labor at a cost of 45 cents. Mex. per ton of 2,000 lbs. each way—say 90 cents in and out.

The use of wheat flour has considerably increased Central and Northern China in the past ten years, but the capacity of the Mills now running at Shanghai are reckoned as quite sufficient to supply the local and outport demands under normal conditions of trade. For the past year it is claimed no profits in flour milling have been made, and most of the mills have run at a loss. The only mill in Shanghai controlled by foreign capital passed its dividend last January and since has been partly shut down most of the time.

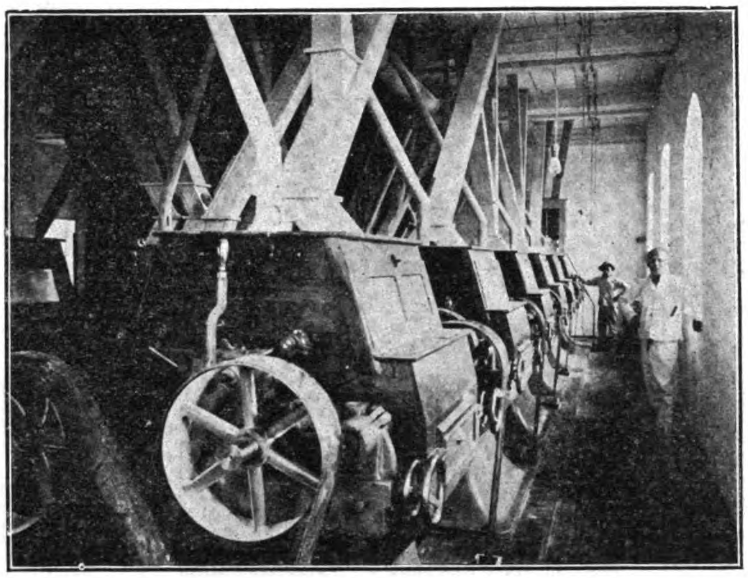
Owing to wheat shortage in the Yangtse Valley, which crop is relied upon to supply the mills at Shanghai, over 39,500 long tons of wheat from America were imported in the past eight or more months, and from Australia, 5,300, but it was found by experience that



THIRD FLOOR OF THE LEE DAH FLOUR MILL AT SHANGHAI SHOWING ELEVATORS, REELS AND SIFTERS

(freight being the same for each) American flour could be laid down cheaper than the local mills could import the wheat and make the flour.

The wheat crop of the Yangtse Valley, inclusive of the famine area, has already been harvested and proves to be above the average in quality and quantity, but owing to the scarcity of rice, the price is maintained at a comparatively high level, but the still higher



SECOND FLOOR ROLLING MILLS INSTALLED IN THE LEE DAH FLOUR MILL AT SHANGHAI

level in the U. S. will prevent any demand from that source for the remainder of the present year. Crops in the North, owing to the drought, will be below the average.

GIGANTIC RUSSIAN FLOUR TRUST IN MANCHURIA

Siberian exchanges announce that Kharbin is now on the eve of the formation of a flour trust which is being arranged by the local mill-owners in company with the Chinese Eastern Railway.

The local millers who, as already known, recently formed a flour-mill company, the consequence of which was an increase in the price of flour on the Russian market, have now approached the Chinese railway with a proposal to make a flour-mill trust in Manchuria, in which the railway will participate with capital and by such auxiliary means as transport by railway, by river in its steamers, and by grants of land; the accomplishment of the remaining activities of the trust will rest on the millers. The proposed net capital of the trust is four million (roubles) of which the millers will furnish a million and the railway three millions.

The details of the enterprise have been worked out and the undertaking itself promises to be grandiose.

It is projected to get into the hands of the trust the entire local Chinese grain market, to stifle all competition of retail corn traders and to capture the corn markets of the Priamur and Zabaikal.

The organizers entertain hopes of great success and of the conquest even of foreign markets. The average output of the trust is estimated at about eighty thousand pounds of flour a day. It is proposed to begin work from the autumn of the current year. It is understood that the management of the Chinese Eastern Railway has met this proposition very sympathetically. Negotiations with the office of the line at St. Petersburg are actively proceeding and there is reason to expect acceptance of the project. Besides the support of the management of the railway, the company' in the person of Mr. Berg, is petitioning the Minister of Finance for acceptance of the proposal, emphasizing the necessity for realization of this enterprise as having an important bearing upon the growth of Russian political and economic influence in the East.

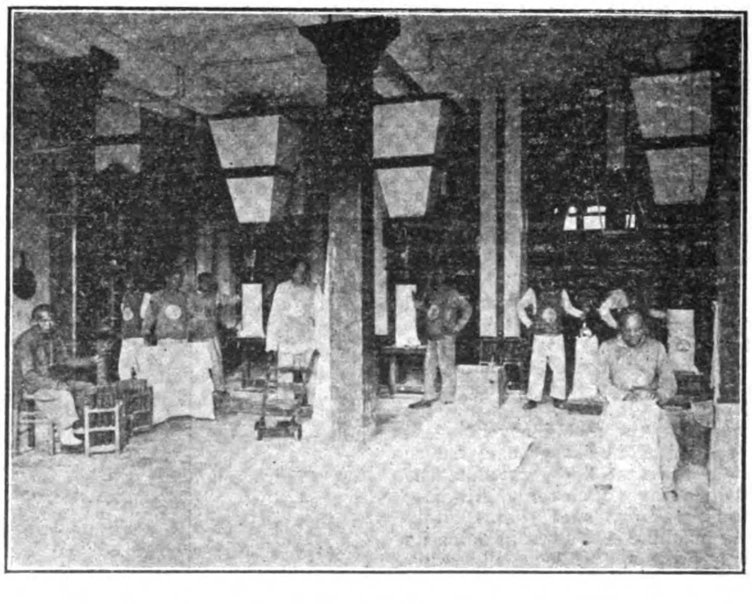
NATIONALIZATION OF JAPANESE RAILWAYS COMPLETE

On October 1st, with the completion of the purchase and transfer of the Kwansai and Sangu Railways by the Japanese government, the nationalization of the railways of Japan was realized and the revised freight and passenger tariff went into effect.

The total mileage of these eighteen lines in 4,809 odd miles distributed as follows:—Tokaido railway, 1,548 miles, Sanyo, 418, Nippon, 860, Hokkaido, 158, Kyoto, 22, Hankaku, 70, Tokushima, 21, Kyushu, 446, Nanao, 34, Hokuyetsu, 85, Sobu, 73, Boso, 39, Kobu, 27, Hokkaido Colliery Railway, 207, Nishinari, 4, Ganyetsu, 9, Kwansai, 280, and Sangu 26.

The minimum rate fare on these lines is 1 *sen* 5 *rin* per mile within 50 miles, and the maximum 2 *sen*. Compared with the revised rate which is 1 *sen* 6½ *rin* those lines to be favored by the change are only 707 miles. The remaining lines, 1,333 miles, will have their fares greatly raised by the change. In short the benefits to be received from the revision are but local.

The total expenditure for the construction and improvement of the government railways involved in the budget approved by the diet of the last session stands at 138,830,000 *yen* which sum is to be defrayed in successive twelve years commencing from the present fiscal year. Of the sum 14,850,000 *yen* will go to the new construction fund, while 33,980,000 *yen* are carried to the improvement fund. The next year's estimated outfit which stands at 29,900,000,000 odd *yen* has to be necessarily increased on account of the purchase of the several private railways as the result of the practice of the Railway Nationalization System. According to the programme the new railways the construction of which is to be started in the course of the next fiscal year are the Oita-Miyazaki-Yoshimatsu line, Niitsu-Shibata line Usa-Oita line (of the former Kyushu Railway) and the lines between Yamada and Toba, between Nitta and Nanao and between Kawarada and Tsu of the former Kwansai Railway. Some of these lines have been already in course of construction by the companies to which they belonged formerly but afterward suspended on account of their purchase by the government. With regard to the improvement work the plan of adding one line each to the Nara-Osaka, Nagoya-Tsu and Nara-Kyoto sections of the Kwansai Railway and running electric cars on these lines will probably be adopted and sanctioned by the Imperial Railway Bureau. As to the Kyushu Railway the reconstruction and work of doubling the lines, reconstruction of the stations and establishment of the coal depot are considered the necessary items of the next year's programme while on the former Nippon Railway's line it is also regarded to be no less necessary to double the lines between Oyama and between Uyeno and Tsushiura of the coast line. The elevated railway of the metropolitan street line to connect with Akihonohara of the former Nippon Railway via Manseibashi (former Kobe Railway) starting from the Central Station is also said to be involved in the next fiscal year's budget.



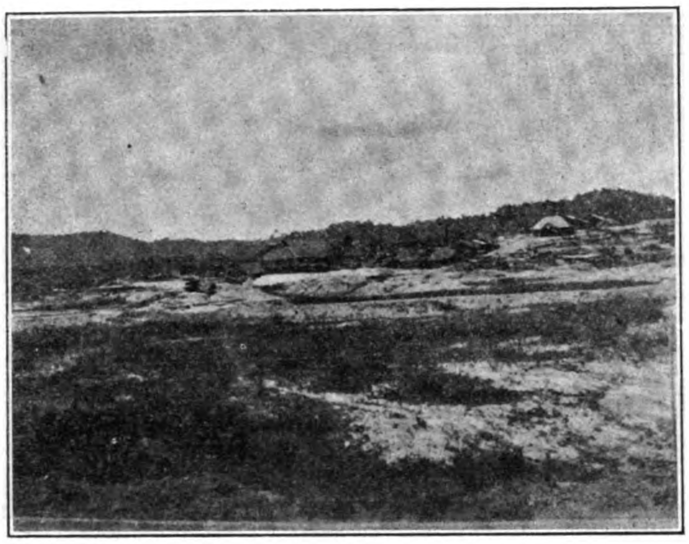
LOWER FLOOR OF THE LEE DAH MILL AT SHANGHAI WHERE THE PACKING IS DONE

GOLD AND TIN MINES IN THE FEDERATED MALAY STATES

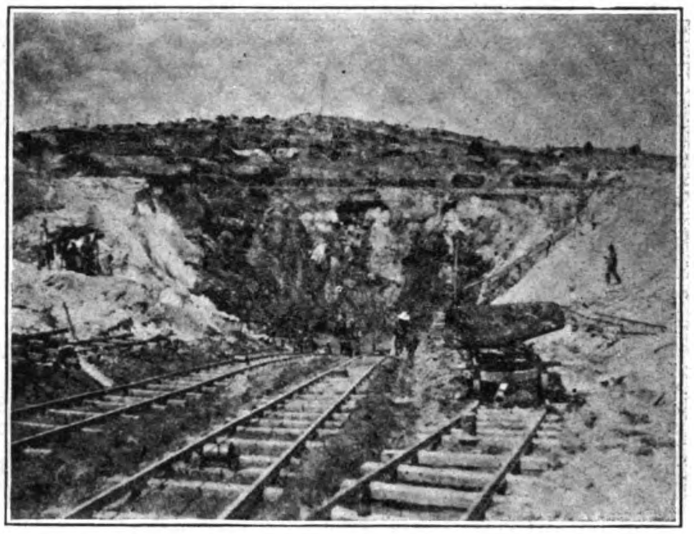
(*Continued from September.*)

It has been known for some time that a lode exists at Machi. This is now being exploited on a small scale by Sheikh Abdul Raman. It is situated in the bed of a right tributary of the Machi near a divide called Ginting Tua; trends, as far as can be gathered from a limited exposure, 10 degs. east of north, and is about 8 ft. wide. The walls are hard silicified shale. The chief mineral content of the lode is pale yellow opaque garnet, occurring in masses of small crystals. A number of specimens of mineralised stone have been examined in my office, microscopic and chemical methods showing cassiterite, blende, and arsenopyrite. Thin sections show monoclinic pyroxene closely associated with the cassiterite, and a fibrous mineral which is probably tremolite. The base of the ore is quartz.

I am indebted to Mons. Legros for the following analysis, made in Paris, of a sample from this lode: Silica, 60.70; tin oxide, 6.20; iron, 15.26; copper, traces; lime, traces; magnesia, .72; sulphur, 13.97.



PROPERTY NEAR THE W. GRANT MACKAY'S MINE AT SUNGEI BESI

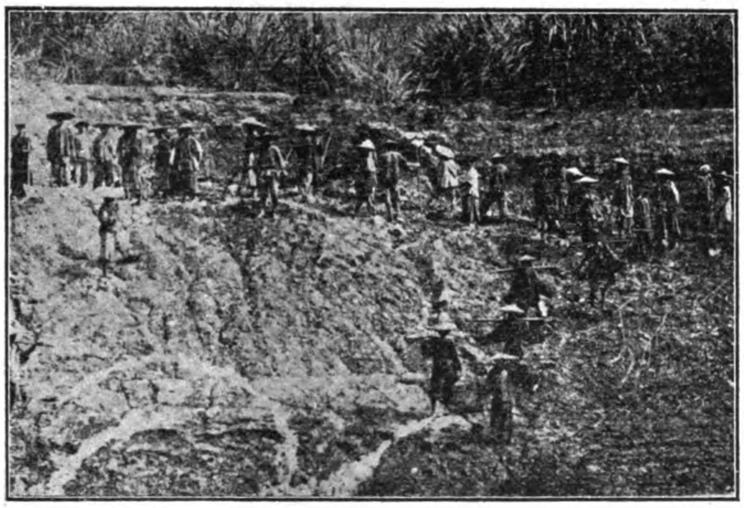


OPEN CUT AT W. GRANT MACKAY'S MINE AT SUNGEI BESI

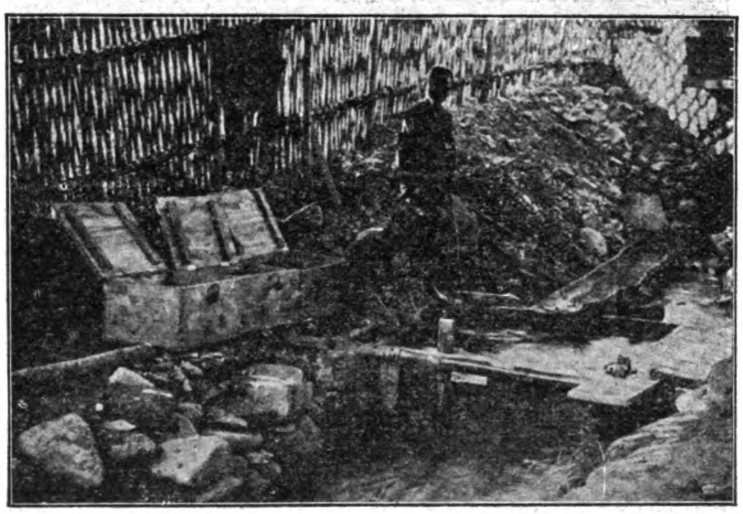
Some years ago the same lode was reported on by Mr. Laws, since deceased. I have not seen the report, but I am told that he mentioned gold and nickel. I have not searched for gold, but I have for nickel, and neither Mr. B. J. Eaton, the Government chemist, nor myself can find a trace. Mr. Laws evidently found a small pocket of some nickel-bearing mineral.

Judging from the state of the ground, I do not think much more than ten tons of rock can have been moved from the lode, and an inspection of the stone still lying on the surface and my specimens leads me to think that the analysis above was from an exceptional sample. The same must have been the case with a sample Sheikh Abdul Raman sent to the Straits Trading Company in Seremban, where an assay showed 15 per cent tin dioxide. It must be confessed that indications are not favorable, but prospecting has not progressed far enough to say more.

Sheikh Abdul Raman informs me that evidence of other lodes has been found in the low hills above the Machi. This information, together with the small amount of amang, the form of the ore, the absence of granite pebbles in the alluvium, and the apparent absence of granite outcrops, makes me think that the alluvial tin ore has been derived from small lodes; and I should say it would be worth while to prospect the slopes of the valleys with a view to hydraulic mining, if I knew of any feasible method of obtaining sufficient water. The tailings are worthy of attention.



SURFACE MINING IN MALAYA PROFITABLE



SLUICE FOR PANNING OUT FINE ORE

MINES IN THE MAIN RANGE

Since I have not seen enough of the Blat tin field, near the east coast, to warrant any remarks on it here, I will pass to the Main Range. There have been some other tin mines, worked by Malays and Chinamen, in the Telom District, between Raub and Batu Talum, and at Tras, while at Bentong there have been extensive open-cast mines. There is a proposal afoot to dredge the Telemong for tin ore, and work is contemplated on a large scale in the Sempan valley near Tras. Again, there are Chinese mines between Bentong and Tras, and a small mine at Lirai.

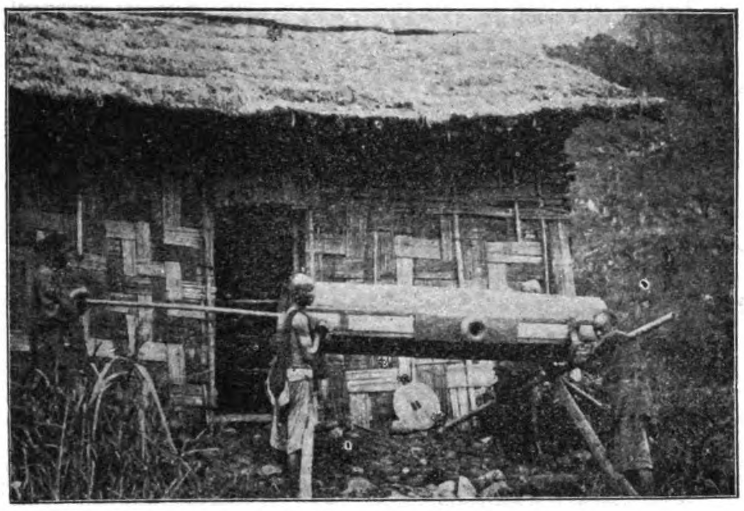
The tin ore found in the Main Range is all, with the exception of that on Gunong Gapis, won by native tributers, or by natives working independently on a very small scale, which means that the eyes are being picked out of the country. But, however much this is to be deprecated, transport is so difficult that while there are more accessible tin fields, capitalists cannot be expected to invest money in developing the resources of these mountains, and it must be conceded that the natives are useful as prospectors. The danger of such operations is that of spoiling mining propositions which might keep alive for a long period settlements that otherwise could look for only a short period of prosperity.

The workings consist almost exclusively as far as I am aware, of lampans—that is, mines where the ore is washed by bringing water to it—and scratchings under boulders in river beds. Owing to the carelessness of the miners the latter method not seldom brings about fatalities.

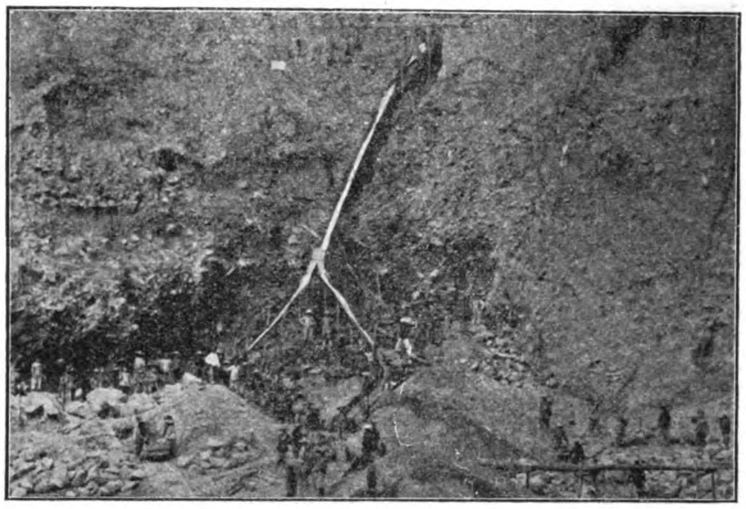
The ore is both alluvial and in granitic rocks. There are some occurrences, however, that deserve fuller notice.

In the valley of the River Chinchong, in the

hills behind Bentong, sluicing operations have cleared a large area of ground and laid bare an innumerable quantity of granitic boulders with others consisting of a most remarkable rock which is doubtless the source of much of the alluvial tin in the valley. This rock is composed of quartz, topaz, and cassiterite. An analysis of a fair specimen gave 7 per cent cassiterite and 7 per cent topaz, but in some boulders the percentage of cassiterite is higher. All these minerals are of about the same grain. The cassiterite occurs in brilliant little crystals



BELLOWS USED AT A SMELTER

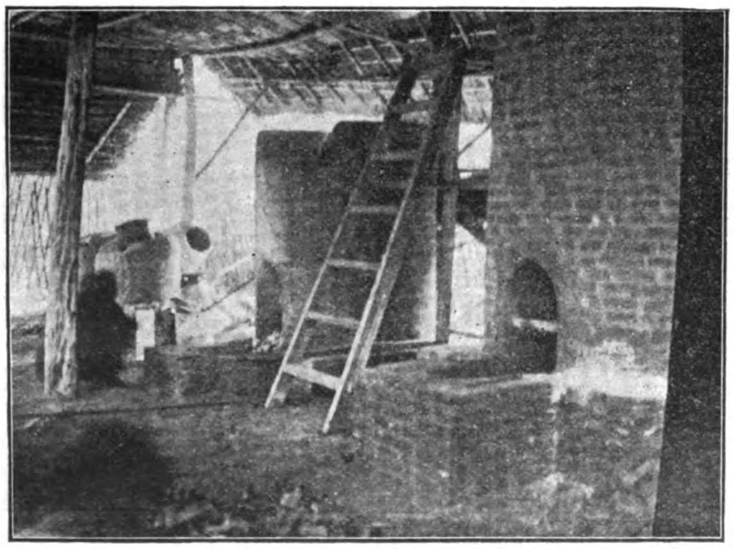


GRAVITY SLUICE FOR WASHING ORE

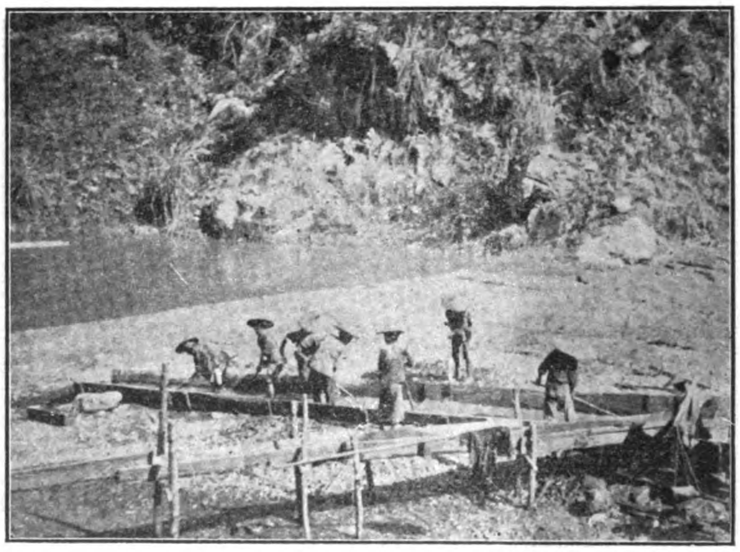
easily discernible to the naked eye. In a hand specimen it is not easy to distinguish the topaz from the quartz without knowing it is present. Under the microscope it shows crystal outline. A weathered rock similar to this was being worked in situ when I was there. Boulders of a rock containing mica instead of cassiterite occur also.

At the present time a little of this stone is being crushed with hammers and washed. I do not make any attempt to estimate how many tons there are on the surface, but the amount is sufficient to justify thorough prospecting with a view to working the rock in situ. Similar stone, I am told, occurs in the River Pengoring.

In the Ulu of the River Kenong tributers are working angular ore of greatly varying grain, which is sometimes found in small lodes. One specimen was sent to me, showing a lode with greisen walls. Here, again, is a property that calls for efficient treatment of known resources, and a search for ground which



BRICK KILN FOR SMELTING ORE



WASHING ORE AT FOOT OF GRAVITY SLUICE

in this case might be worth quarrying, if not worth mining. When I was there the tributers were picking out the rich spots.

On the top of Gunong Gapis, at about 2,400 ft., is a mass of soft pegmatite carrying tin as a dissemination, and also in small leaders and pockets with tourmaline and quartz. In two cases leaders were seen which had the tourmaline and tin ore on one side, the quartz, with a little tin ore, on the other. Here, unlike the Rivers Chinchong and Kenong, there is a great scarcity of water. The deposit is worked by the Sempan & Gapis Tin Mining Syndicate.

Near Bukit Fraser (4,000 ft.) the Sempan Tin Mining Company holds a large area of land, worked on tribute, which extends almost as far as the Raub Power Station. Close to the manager's house is a mass of ore in granite consisting of quartz, tourmaline, and cassiterite. There is reason to believe that it has a lenticular form, but owing to the Chinamen only taking out stone that can be easily worked there is not very much to be seen. Similar, but smaller, bodies occur hard by, and there is also stanniferous pegmatite in the vicinity.

Native lampans are in operation in the Liang valley.

Not having done any extensive prospecting in the Main Range myself, I am, of course, unable to assert that there are propositions worth being worked on a large scale. I am of the opinion, however, that these hills in Pahang are such as demand careful prospecting with a view to doing more than flooding the valleys with Chinese tributers.

TIN MINING ON THE WEST OF THE DIVIDE

On the west side of the Main Range increasing attention is being bestowed on the development of propositions where the tin ore is still in the position it occupied when it first came into being as cassiterite. It is chiefly with such deposits that I propose to deal with as follows:—

MALACCA

I have had an opportunity of examining two interesting tin deposits in Malacca—one at Chin-Chin, the other on the coast at Tanjong Serai, near Kuala Linggi.

At Chin-Chin the surface is gently undulating and covered with a thin cap of soil with laterite and tin ore. The country underneath is schistose. Some fairly fresh phyllites were seen. The ore is always sharply angular and varies greatly in grain, from minute particles up to large blocks of several katis in weight. At the time of my visit a little prospecting wa being carried on by white men. For the rest, all the work was being carried on by Malays and Chinamen. There was no attempt at classification. Towkay Chwee Lim was working on a big face which he had to blast owing to cementation by iron, which extends down to the schists. The same Towkay was boring into the soft schists. Very little can be seen of the bedrock at Chin-Chin, but the evidence on the surface points to the existence of small lodes in the country over a wide area. The boring operations just mentioned might possibly strike such a lode, but they were not instituted with that object. Should a mining engineer think it worth while to prospect with a view to developing possible lodes, the obvious course would be to strip the surface where the natives have found most tin ore, and especially in the vicinity of the large blocks. The scarcity of water and abundance of laterite would present obstacles to hydraulic operations and so also, I imagine, would the configuration of the ground.

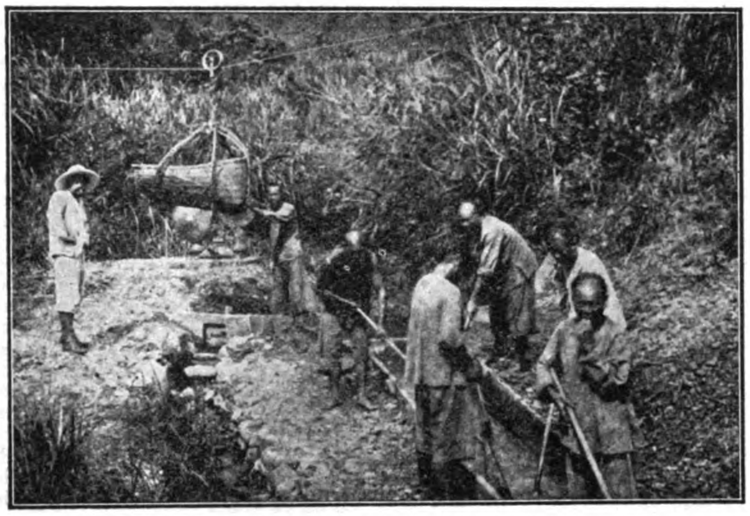
Near Tanjong Serai prospecting has been carried on for some time with a suction-dredge on a deposit of tin ore below low-tide mark. At Tanjong Serai laterite replacing schists occurs; at Tanjong Miriam Patah pegmatite

is covered by a band of vesicular laterite and white earth. Some specimens from the dredge point to the tin ore occurring chiefly as a dissemination in pegmatite, but as there is very little in the way of corroborative sections to be seen on land, the evidence is not strong. The bulk of the ore taken so far, which gives a high assay value, comes from a thin covering of black mud forming the sea bottom. It may be safely presumed that this tin-bearing mud is the result of the gradual concentration of the surface of the stanniferous pegmatite by the action of the tides, probably complicated by another movement of the sea water. I am told that Malays have for years washed tin ore from the sea bottom, not only between the two capes named above, but farther to the south.

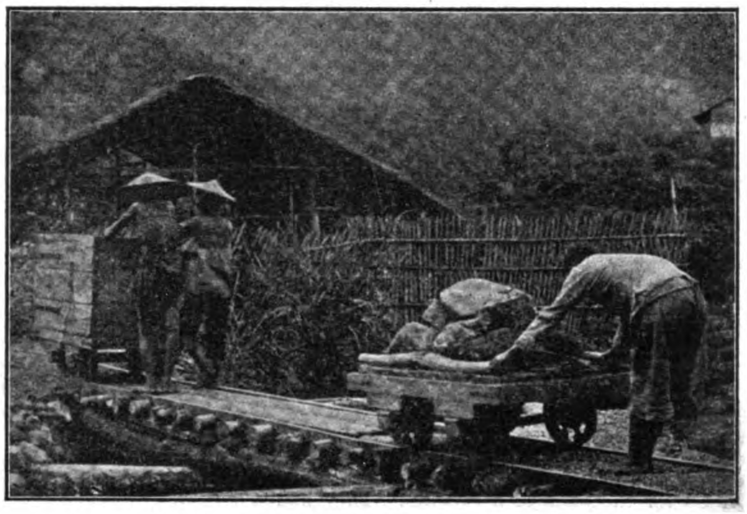
THE BRUSEH STOCKWERK

No mining company in these States has had a history so nearly approaching to romance as the Bruseh Hydraulic Tin Mining Company, whose property is of great interest both geologically and as a study of method.

My first visit to Bruseh was in December of 1903, at which time work had not long ceased in the Gomorrah valley, where on a bedrock of schists the soil had been foundto be stanniferous. Some granitic rocks were seen with the schists, and also two strong quartz reefs, on the top of one of which quantities of coarse tin ore were found. No ore was visible in the reef, and it is supposed that it had acted as a riffle against the tin ore slowly descending the hillside with the soil. Gold had been found in the vicinity. Work was in progress in the valley of the River Pinang, where masses of laterite, which also occurred in the Gomorrah valley, proved a serious obstacle to hydraulic mining. On the River Durian natives were sluicing tin ore. At Changkat Garam, Old Bruseh, a junction between sandy schist and pegmatite was visible. From the latter tin ore was being extracted by an old Malay, who stated that no tin ore occurred in the schist. In the pegmatite the tin ore occurred both in veins with iron oxides and as a dissemination. At Old Bruseh proper was a fine example of schorl rock, which later on was found to contain pockets of tin ore as an original constituent, together with some sulphides. I was informed that natives had found rich patches of tin ore at about 15 ft. below the surface, while on the surface stringers of iron oxides and tin ore had been worked by natives also. At the time of my next visit, in July 1904, preparations to work the schorl rock at Old Bruseh had been instituted, but were ultimately abandoned. The pegmatite at Changkat Garam had been partially worked away by a monitor. It was found worth working only where deeply colored with iron In the Relau valley work had progressed, and another strong quartz reef laid bare, against which was found tin ore in larger quantities than usual. Schists again formed the bedrock, and in them were abundant veinlets of soft white clay, sometimes containing tourmaline.



BASKET TROLLEY FOR CONVEYING SLUICED ORE



TRANSPORTING ORE TO THE SMELTER

Small lenticles of quartz in the schists were abundant, and small stringers with good crystals of tin ore had been found also, both in the schists and in the white clay.

Prospecting on another face was in progress higher up the valley, where I saw a sample of decomposed schists washed with negative results, but it is noteworthy that the idea had then taken root that the tin ore in the soil came from the schists underneath and that it might be worth extracting it. At this time the affairs of the company were not satisfactory.

I was at Bruseh again in December 1904, by which time a startling development had taken place, owing to the heroic measures taken by the company at the advice of Mr. W. D. O'Brien. Evidence had accumulated of the existence of small lodes in the schists, and abandoning any further attempts to work the soil, the monitors were used for prospecting, and turned on the schists, with the result that there was discovered a system of thin tin-bearing veins which has proved a valuable asset to the company.

In order to appreciate the difficulties to be overcome in winning the tin ore from these veins, a description of the schists is necessary. Where they are at all amenable to treatment by monitors they are more or less decomposed. Some are sandy, some are clayey. In the Relau valley work was ultimately checked by the monitors reaching fresh garnet-pyroxene schist of fine grain, so tough that it would make good road metal. There is reason to suppose that the clayey schists are derived from some such rock at this. The sandy schists are obviously the result of earth movements and probably contact metamorphism too, on sandstone, and some idea may be gathered of their nature when I mention that it often happens that a fresh face has to be left a month or more to weather before the monitors can make any useful impression on it, working at 140 lbs. pressure with a 3-in. nozzle. The monitors have also to be assisted frequently by blasting.

CHARACTER OF ALLUVIAL VALLEY, SUNGEI BESI

At the present time the workings at Bruseh are confined to the hill separating the River Pinang from the River Durian. On the River Durian side a huge pit has been excavated with an outlet into the valley and a face 230 ft. high. The ridge connecting with the work on the Pinang side has been broken through.

The tin-bearing veins are numerous and generally rich in tourmaline, which extends for some inches from the fissure, the latter being in some rare cases almost completely filled with cassiterite over a portion of their length. I have a specimen in my collection of a solid slab of cassiterite with iron ore representing the contents of a vein without the walls. The greatest thickness of the slab is 2 ins., and it shows that smaller veins of cassiterite branched off into the schist. The veins vary in thickness considerably, but an inch may be taken as a fair average. Generally speaking, the veins are parallel among themselves, but it is not uncommon for one vein to split up into two or more smaller veins, and I have a photograph of a big face showing veins intersecting at an acute angle. In all the sections I have seen they cut the bedding of the schists. In December 1905 I was shown other veins, rich in quartz, but also carrying cassiterite, cutting the normal tourmaline-iron-cassiterite veins. I was also informed that lenticles of quartz in the schist sometimes carry tin ore.

In the River Durian valley the veins are now exposed along a high face, roughly 300 yds. long, trending N.N.W.—S.S.E., and it is remarkable that the extent of the veins worth working is at present limited by the extent of the sandy schists. When the clayey schists are encountered veins are less numerous and more minute, while such tin ore as they contain is finer than in the sandy schists. At Pantai, near Kuala Lumpur, I once saw a very clear section of interbedded shale and sandstone showing tin ore "making" strongly in the sandstone and hardly at all in the shale. I do not argue from this that, as a general rule, tin ore should be searched for in sandstone in preference to argillaceous beds.

The average yield of the ground at Bruseh containing these veins is estimated at ½ kati per cubic yard. A little wolfram is found.

Apart from the difficulties of effecting a fall of the schist face, great trouble is experienced on account of the blocks of laterite that come from the soil. When last at the mine a big fall of tin-bearing ground had occurred, but the quantity of laterite that fell with it was so great that it was expected eight weeks would be spent in clearing it away before the pay dirt could be washed into the riffle-box.

THE JEHER HYDRAULIC TIN MINING COMPANY

The operations carried on by the Jeher Hydraulic Tin Mining Company near Tanjong Malim resemble in some respects those at Bruseh. It was known that Chinamen had obtained quantities of tin ore by shallow shafting along a line over the back of a low hill. They had come to an end of what was to them profitable ground, and had abandoned their shafts. Further examination proved, however, that these shafts had been sunk along a band of soft sandstones and shale country traversed by numerous veins of quartz carrying coarse cassiterite. Monitors were brought to bear, and by the aid of blasting it has been possible to work down on these veins in an open cut for about 40ft. below the surface of the bedrock.

The band of country along which the veins occur trends roughly east and west and underlies slightly to the south. I understand that 20 ft. is the greatest thickness of the band discovered so far. This was found at the top of hill. Mr. René Proust, formerly manager of this property, estimates the total distance through the hill from the spot where operations were commenced on the east to where soil is now being worked by monitors on the west as 1,000 ft. The height of the hill above this base was originally about 250 ft. At the east end, close to the lowest part of the open cut, a shaft was sunk for 60 ft. and a crosscut proved the continuation of the quartz veins. Tin ore was found, but not in any great quantity, which, in fact, was not expected, since the shaft was not near the best tin-bearing ground.

In addition to the quartz veins, other veins traverse the sandstone and shale. At the east end of the open cut is a vein or dyke of quartz with tourmaline and muscovite. Elsewhere in the open cut are veins of mica, some being lepidolite; stringers of white mica with cassiterite, and sometimes pyrite; and also veins of quartz and kaolin with long prisms of tourmaline.

On the west side of the hill the tin-bearing quartz veins have been lost. On the north a large amount of tin-bearing soil has been stripped laying bare sandstone and shale traversed by numerous small veins of quartz carrying a little cassiterite. It was here that I saw an excellent example of surface curvature due to soil-creep. Three very thin, parallel quartz veins were so bent over in the soil as to lie, near the surface, nearly parallel to the slope of the hill. This is of interest in connexion with the big quartz reefs at Buseh acting as riffles.

The Jeher veins differ from the Bruseh veins chiefly in having clean-cut walls enclosing a gangue of quartz and in the absence of tourmalinisation of the adjacent country.

THE SERENDAH HYDRAULIC TIN MINING COMPANY

This company has been recently floated, and is working with monitors on the site of old lampans. At the time of my visit soil only was being worked, but the country had been bared and was seen to consist of soft granitic rock with a few veins of quartz carrying a little tin ore, and veins of a granite modification resembling greisen, also carrying tin ore. In No. 1, the biggest working, these veins have a general north and south direction.

In an adjacent working is what has already come to be referred to as "the lode." This appears to be a repetition on a large scale of the veins of a granite modification mentioned above. The direction is about W.N.W.—E.S.E. The underlie is not clear. It stands up like a dyke in soft pegmatitic granite. The length of the outcrop is about 150 ft., the breadth between 20 and 30 ft. It is a granite modification comprising quartz, white mica, tourmaline in small masses of needles that give the rock a spotted appearance, kaolin, and cassiterite as small crystals. The cassiterite sometimes occurs in quartz, sometimes in masses of mica, and appears to be an original constituent of the rock. The last point is not clear, however, since I only saw one or two specimens, and saw no tin ore in situ in the outcrop. Mr. Proust, now managing this company's land, informed me that three pikuls of ore had been handpicked from the rock. Experience elsewhere shows that tin-bearing granite modifications such as this are very uncertain in their behavior. At Bruseh some expense was incurred before it was discovered that there was only a small bunch of cassiterite crystals to depend on. On the other hand, at Salak South there is a mine in tin-bearing pegmatite of phenomenal richness. At Tanjong Rambutan similar dykes of granitic rock have proved, so far, not worth working.

TIN ORE IN LIMESTONE

Perak is remarkable for the discovery of payable deposits of tin ore in limestone. Elsewhere, tin ore in limestone has been found with iron in Tuscany; and Mr. Sydney Fawns* mentions occurrences in Maine, U. S. A., where small veins containing cassiterite, fluorite, mica, quartz, and mispickel, traverse impure limestone. In the former case the ore has been worked.

There are five localities in Perak where mining is or has been carried on in these deposits. They are: Changkat Pari, near Ipoh; Ayer Dangsang, near Lahat; Siak, near Siputeh; Jesophat's Valley, Sungei Siput, Kuala Dipang; Lahat.

CHANGKAT PARI

The work at this mine has been pushed ahead by the sublessee, Towkay Foo Choo Choon, and a big shaft has been sunk on the deposit to a depth of about 100 ft. The ore body is roughly elliptical in horizontal section, and has proved very rich in cassiterite: how rich may be judged from the fact that the manager, when conversing with me, deplored being able to obtain 5 per cent only of tin dioxide in the bottom of the mine. There are no distinct walls to the deposit as a whole, but a line can be distinguished between the calcite associated with the irregular masses of cassiterite and the crystalline limestone country. A typical specimen of ore shows a mass of calcite crystals enclosing short prisms of dark brown cassiterite, pyrite, arsenopyrite, chalcopyrite, and bornite. Mr. Penrose—"Chicago Journal of Geology," XI., p. 135, 1903—mentions rhodochrosite. I have failed, so far, to detect any tourmaline, fluorite, or quartz. Some microscopic slides showed chlorite. The manager contemplates driving out from the shaft. The ore is stamped, roasted, and then washed in a land-chute.

(*To be continued.*)

* "Tin Deposits of the World," p. 158.

HONGKONG WATERWORKS

No appropriation was made available for the construction of the second section of the Tytum Tuk reservoir recently proposed by the Legislative Council at Hongkong as it was decided that since the capacity of the system was recently increased by 230,000,000 gallons, no immediate danger of a water famine threatened. The capacity of the storage reservoir at the present time is 350,000,000 gallons. There are two miles of catch water channel, three filter beds with a capacity each of 500,000 gallons a day. There is also a service reservoir holding 2,000,000 gallons. This proposed second addition provides for the construction of a dam across the shallow head of Tytam Bay and form a monster reservoir with a capacity of 1,200,000,000 gallons which would almost double the present capacity of the reservoirs. It is estimated that the completion of this project would take at least five years. The *Government Gazette* for June contained an advertisement for the building of a dam at Tytum Tuk and the construction of other contingent works. Commenting on the proposed addition the *China Mail* of recent date declares that this work will constitute the most important section of waterworks expansion in the history of the colony. Continuing the *Mail* describes the scheme as follows:

"And now we come to the work for which tenders are being asked and which is to put an end to our water troubles. It is proposed to construct a dam 60 feet high across the shallow head of Tytam Bay and thus to form a reservoir of 1,200 million gallons' capacity, our existing five reservoirs under the best of circumstances contain only 747 million gallons. A trench will first be dug through the mud and sand to hard ground, in some places 60 feet below low water level; this trench will be filled with cement concrete and above it an earthen dam will be built similar to that at Pokfulam but with a cement concrete core in continuation of the cement concrete filling of the trench. The toe of the bank will be protected on the sea side by a substantial stone wall. The water from this reservoir will be raised to the Tytam Tunnel by the pumping plant already mentioned which will be greatly reinforced.

"The dam is expected to take five years to construct, and we think we may now with safety congratulate the Government on having put the Colony on a fair road towards the solution of the water question and the abolition of the annually recurring water famines which have been a source of reproach to us for so many years."

The following history of the development of the Victoria water supply system is of interest demonstrating as it does the difficulties overcome by the colony since the year 1863 when the first plan of any magnitude was put into effect.

Prior to the year 1860 the water supply of Victoria—there was then no Peak District—was mostly obtained from the streams flowing down the northern slope of the hills immediately above the city. The requirements in those days were small, the population of the city amounted to 50,000 and the boating population was estimated at 15,000. An early stoppage of the summer rains in 1858 found the supply inadequate for even these small numbers, and the first scheme of any magnitude for the supply of the city was consequently undertaken, and was completed in 1863. This project comprised the building of a small dam or "intake" on the stream above Pokfulam village, just below the present Pokfulam reservoir, and the laying of a 10 inch pipe to the city, it provided practically no storage and was soon found inadequate to the demands.

The next work taken in hand was the building of the Pokfulam Reservoir, this was carried out between 1866 and 1871. The dam is an earthen one, about 50 feet high, and forms a reservoir of 68 million gallons' capacity with a catchment area of 416 acres and top water at 554 feet above sea level. About this time intakes were also constructed on the Tai Hang and Wongneicheong streams, at the east end of the city.

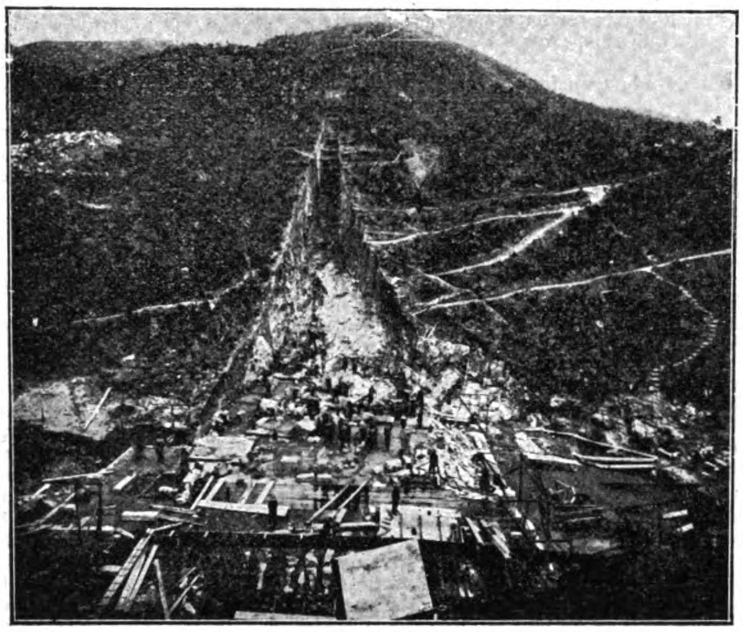
The 10-inch pipe already mentioned conveyed the water to "No. 1 Tank" (now dismantled) at Breezy Point just above the Ho Min Ling Hospital. The built area of the city soon extended above this level and the difficulty of supplying these upper levels brought about the building of the Pokfulam Conduit, superseding the 10-inch pipe in Pokfulam road and delivering the Pokfulam water in Glenealy at about 500 feet above sea level. This work was completed in 1877 under the supervision of the well known engineer Mr. W. Danby.

The following is a table showing the rapid growth of the population of the city which has led to the continuous extension of the waterworks.

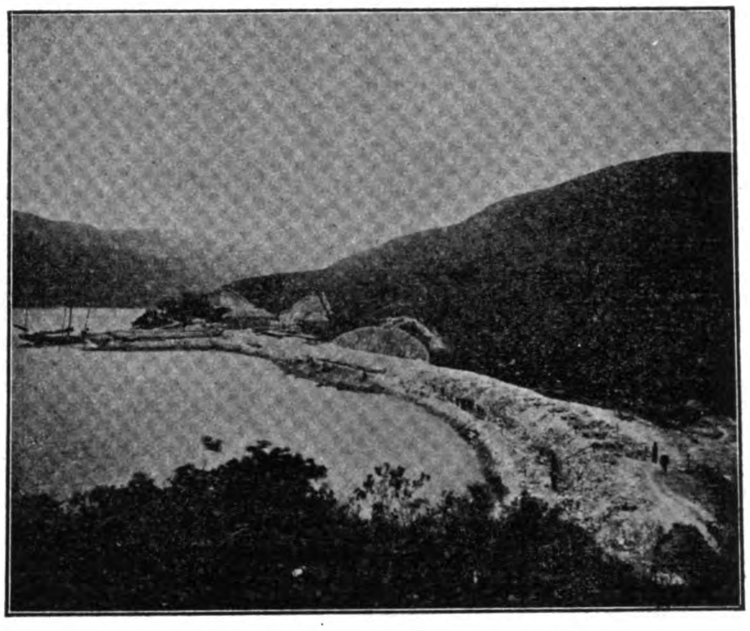
	Civil Population of Victoria
1860	68,910
1871	83,014
1881	106,393
1891	136,901
1901	181,918

It will easily be seen from these figures that anything in the shape of finality in the construction of works could scarcely be expected, and it was not many years before the Tytam scheme was taken in hand. This scheme owed its supply for several months in the winter. A similar scarcity, though less severe, occurring in 1893 and 1894 it was decided to raise the Tytam dam 10 feet, an operation which had been contemplated in its original design. This work was carried out in 1895-6, giving an additional storage capacity of 96 million gallons. By a curious irony of fate, there occurred in 1895—when the dam had already been raised 5 feet—one of the lowest summer rainfalls on record and Tytam did not fill even to its original level. This led to the commencement of a scheme of catchwaters for the purpose of increasing the catchment area of the reservoir.

Given above is a table showing the rapid increase in the population of the city, to meet ally low summer's rainfall—1901—produced a disastrous water famine, and in the spring of 1902 the scarcity of water had come to such a pass that it was found necessary to convey water to the city in lighters from Tsun Wan, the cost of this and other temporary measures adopted amounted to $66,000. The Government then proposed drastic remedies, and in 1902 a bill was introduced and passed providing that all tenement houses should obtain their water from public taps. The Secretary of State however disallowed the Ordinance, and on the advice of Mr. Chadwick, consulting engineer for the Crown Colonies, another Ordinance was passed providing for the control of the water supply to most of the city by a



LAYING THE PIPE LINE THROUGH HILL AT TYTAM BY MEANS OF TUNNEL



SITE OF PUMPING STATION ON TYTAM BAY, THE HEAD OF WHICH HAS BEEN DAMMED

inception to Mr. J. M. Price, then Surveyor General, and it was carried out during the years 1883-1889 by Mr. James Orange and included the construction of an impounding reservoir in the Tytam valley of 312 million gallons' capacity with a catchment area of 680 acres and top water level 496 feet above the sea, the water is conveyed—first by means of a tunnel a mile and a half long and then by 3 miles of conduit—to the Albany, where filter beds and a service reservoir were constructed.

The prospect of a largely increased supply rendered desirable the passing of regulations for the equitable distribution of that supply, and in 1890 the first Waterworks Ordinance was passed, the original draft containing the proviso that all services laid into private premises should be metered. Unfortunately the erroneous notion that the "big reservoir at Tytam" would solve the water question for all time had gained firm ground in the popular imagination, and the bill was amended in Legislative Council with the result that services were laid into all houses and no adequate restrictions placed on the use or waste of water.

The Pokfulam water had, so far, been supplied unfiltered. During the winter this caused little or no inconvenience, but in summer the water was often highly charged with sediment. This was remedied by the construction, in 1890, of the West Point Filter Beds and Service Reservoir. At the same time it was found necessary, in view of the increased supply rendered available by the Tytam Works, to reorganize the distribution works in the city. These works, including the provision by pumping of a supply to the Peak, were carried out in 1890-92.

The mistake of placing no restrictions on the consumption soon bore fruit. The Tytam works cost $1\frac{1}{4}$ million dollars, but, within two years of their completion it was found necessary to resort to the intermittent system of which, extensions of the Waterworks were from time to time undertaken, but unfortunately, generally after the increased demand and not in anticipation of it, with the result of a fairly regular winter's shortage of water as is shown in the following table:

1891	supply intermittent	February	May
1893	"	March	April
1894	"	March	May
1895	"	April	July
		and Oct.	Dec.
1896	"	Jan.	March
		and part of	June
1899	"	April	June
1900	"	May	
1901	"	Nov.	Dec.
1902	"	Jan.	May
		and Nov.	Dec.
1903	"	Jan.	April
1904	"	Jan.	June
1905	"	March.	

"This inadequacy of the supply," says the *China Mail* of 13th December, 1902, "was first brought seriously into prominence in 1895, when an exceptionally low summer's rain failed to fill Tytam reservoir, and as a consequence the intermittent supply was introduced in October. This produced considerable public agitation and resulted in a report on the water supply of Victoria by Mr. F. A. Cooper, then the Director of Public Works. On the strength of this report the Wong-nei-cheong Gap Reservoir and the Tytam catchwaters were made, but nothing more was done than Mr. Cooper considered to be necessary for what were then (1896) the present requirements. For future requirements Mr. Cooper had advised the building of three additional reservoirs in the Tytam catchment area and an additional reservoir at Pokfulam."

With the exception of commencing a small additional reservoir below the Byewash at Tytam to contain 26 million gallons, matters were allowed to drag on till another exception- system of "rider-mains" and for the introduction of meters on all services connected with the principal mains. Mr. Chadwick also advised that instead of constructing further storage reservoirs within the catchment area of the Tytam Reservoirs, as recommended by Mr. Cooper, a scheme should be prepared for developing the lower levels of the Tytam Valley from which all the water would have to be pumped. In making the necessary surveys for this scheme it soon became obvious that works of considerable magnitude, which would take many years to carry out, would be required, and, even with the control of the supply to be effected by the introduction of the rider-main system, it was recognized that further storage works and sources of supply were an urgent necessity. A temporary pumping plant capable of raising half a million gallons a day was therefore erected at the fork of the Tytam stream about a mile above the village of Tytam Tuk for pumping the water from that stream up to the level of the Tytam tunnel, but, in the absence of a storage reservoir the amount available was practically limited to the daily delivery of the streams, the headwaters of which were intercepted by the Tytam catchwaters and dam.

This pumping plant was erected in 1903, and in the following year the Government, acting on the advice of Mr. Chatham, Director of Public Works, commenced the construction of a reservoir of 210 million gallons' capacity with overflow level 200 feet above the sea on a site which had been suggested in Mr. Cooper's report of 1896. The work involved the establishment of a permanent pumping station and the laying of a rising main to convey the water into the Tytam tunnel, where it will merge with the gravitation supply from the existing works, and it was decided to construct these so that they would form part of the large scheme to be undertaken later. Consequently the pumping station was located on the shores

of Tytam Bay, and, as it was necessary that the rising main should be clear of the future low-level reservoir, a new road was constructed from the Stanley gap near Tytam Bay to the tunnel entrance, with a branch road to the pumping station. Two sets of pumps, each capable of raising 1½ million gallons a day up to the Tytam tunnel, were obtained. An 18 inch suction main was laid from the Reservoir to the pumping station and an 18 inch rising main from the pumping station up to the Tytam tunnel, a distance of nearly two miles. Provision was also made for duplicating the rising main at a future date, the road work being designed with a view to this, and the pumping station buildings were designed with a view to their future extension.

DALNY DOCK AND RAILWAY

Vice-Consul Charles Lyon Chandler, writing from Dalny, tells of the opening of the Dalny dock to vessels of all nationalities and of the proposed improvements of the South Manchurian Railway. He says:

The Dalny dock was transferred April 1 from the Japanese ministry of the navy to the South Manchurian Railway Company, and is now open to vessels of all nationalities. Though the dock can only accommodate ships of 2,600 tons burden at present, it is proposed to complete the work begun by the Russians and so enlarge it that it may accommodate 20,000-ton vessels. The docking charges are as follows:

For the first three days (but no reduction made for a vessel staying less than three days) for vessels under 300 tons, 500 yen (yen= $0.498 United States currency); 300 to 400 tons, 520 yen; 400 to 500 tons, 540 yen; 500 to 600 tons, 560 yen; 600 to 700 tons, 580 yen; 700 to 800 tons, 610 yen; 800 to 900 tons, 640 yen; 900 to 1,000 tons, 670 yen; 1,000 to 1,200 tons, 700 yen. For vessels of over 1,200 tons, 50 yen for each additional 100 tons. For the fourth day and for every day thereafter: For vessels under 300 tons, 50 yen; 300 to 400 tons, 55 yen; 400 to 500 tons, 60 yen; 500 to 600 tons, 65 yen; 600 to 700 tons, 70 yen; 700 to 800 tons, 77½ yen; 800 to 900 tons, 85 yen; 900 to 1,000 tons, 92½ yen; 1,000 to 1,200 tons, 100 yen; for vessels of over 1,200 tons, 5 yen for each additional 100 tons.

The chief of the marine transportation bureau of the South Manchurian Railway Company informed me that it was proposed to reduce these somewhat high charges about May 1. Any changes occurring therein will be reported. The bottom of the dock is 118 meters (meter= 39.37 inches) long; the top, 126 meters. It is 21 meters broad at the middle of the top and 10 meters broad at the middle of the bottom. At its entrance the dock is 15 meters broad at the top and 13 at the bottom. The dock is 7 meters deep throughout.

SLAUGHTER HOUSE AND ANIMAL DEPOTS FOR KOWLOON

Out of the appropriations for public works at Hongkong for the year at least $75,000 will be spent in the construction of a new and modern slaughter house and animal depots near Ma Tau Kok, a site which offers the best possible facilities for adequate drainage. The sum appropriated also provides for the removal of the existing slaughter house and cattle depot located in the vicinity of Des Voeux Road, Hunghom bay. The report of the committee on public works was adopted unanimously and in addition the work was directed to be started at once and a road authorized built from the Kowloon City Road to the new buildings.

The Chairman submitted block plans of the New Slaughter House and Animal Depots for Kowloon, and explained that the removal of the existing Slaughter House and Cattle Depot adjoining Des Voeux Road, Hunghom Bay, was necessitated by the construction of the railway, and it was proposed to construct new buildings to replace them on a site near Ma Tau Kok, where the drainage, which was of a somewhat offensive nature, could be discharged into water of considerable depth. At the same time, it was proposed to make the new slaughter house more than twice the size of the present one and to add separate sheds for the accommodation of 400 swine and 200 sheep or goats, for which no special provision existed in the present depot. The shed for cattle would accommodate 120 head, being of the same dimensions as the existing cattle shed, which was, however, utilized to a considerable extent for the housing of swine, etc. It would be quite possible to defer the construction of either the swine shed or the sheep shed until some future time, as it was intended to appropriate a large area of land which would enable future extensions to be carried out.

The estimated cost of providing the accommodation stated above, including compensation to some squatters who would be dislodged, the preparation of the site and its enclosure by walls and fences, an isolation shed, the necessary offices, and repairs to an existing house to render it suitable for an inspector's quarters, was $75,000.

Referring to the contemplated transfers and the new construction in connection with the animal depots and slaughter house in his recent address to the legislative council, His Excellency The Governor said:

"Turning to other items of the public works scheme, I may refer to the animal depots at Kowloon which are represented by $52,000. These are very urgent and are necessitated by railway construction. The station yards and sidings interfere with the present site, and it is imperative that we find a new site for the depot and slaughter house. Moreover when the railway is finished in all probability a very large proportion of the railway trade will consist of cattle and sheep and we should therefore have ample room and a good shelter for them. Therefore although our present scheme is only to construct comparatively small depots we have enclosed a large area of ground in order to make further extensions when they shall be required."

SOUTH CHINA CAMPHOR

Responding to an inquiry from Seattle as to crude Chinese camphor in the Hongkong market, Consul-General Amos P. Wilder writes:

This business is mainly in the hands of five German firms. The camphor from Kwangsi Province is inferior, perhaps 20 per cent less as compared with Fukien Province camphor; in color it is markedly darker than the Fukien article, and the natives have a way of mixing it with fish and other impurities. It has become discredited, and the supply being comparatively small, apart from that consumed here or sent to India, Kwangsi camphor is not much in evidence in Hongkong at present.

The Fukien or Foochow camphor (Foochow being a central port for exportation) is also shipped from this port. In appearance it resembles the coarsest white sugar, though off in color, with the strong camphor odor. The evaporation of camphor is considerable, usually 5 and sometimes 10 per cent, and leads to disputes, making it a difficult article of commerce. Consignees claim underweight and lawsuits occur. India is a large consumer of South China camphor, Madras being a leading point; it is used in candles for illumination purposes, and the making of cordite, etc. Camphor for export is packed in tin or zinc-lined cases to avoid rust, 1 picul (133⅓ pounds) to the case, and shipments of 500 and 1,000 cases are not unusual. Camphor is never shipped in the same oriental cargo with tea. Most of the camphor from this port is shipped to New York City. [Camphor dealers at Hongkong named by the consul-general are filed for reference at the Bureau of Manufactures.]

WEST AUSTRALIA'S PEARLING

Directions have been issued to all licensing officers appointed under the Pearlshell Fishing Act of 1886 in West Australia that no license is to be granted to any person to use or employ a ship in the pearlshell fishery, if there is reason to believe that such person is, or is about to become, associated with any Asiatic or African, who (1) will have a share or interest in the pearls obtained by such ship; or (2) will have a share or interest in pearlshell obtained by such ship, other than the divers' ordinary and usual pay; or (3) is to pay or be charged with any part of the working expenses of such ship; or (4) has, or is to have, any lease, directly or indirectly, of such ship.

These directions shall not prevent the renewal of any license so long as the licensing officer is satisfied that no person of Asiatic or African race, other than the licensee, has any share or interest.

CHINESE IMPERIAL TELEGRAPHS

In view of the present tendency of the Chinese to assume the management and control of the railroads and other important business enterprises, a résumé of the annual report of the Imperial Telegraph Administration, prepared by Mr. F. D. Cloud, student interpreter at the Shanghai consulate-general, contains some interesting items:

Originally this system of telegraphs was a private concern organized by wealthy Chinese officials and gentry, but some eight or nine years ago the Central Government took over control of the company, allowing certain merchants to retain their shares, increased the capital, and secured a monopoly of the business throughout the Empire. Under Government management the system is approaching a tolerable degree of completeness and usefulness. Of late years, also, it has been paying fairly good dividends, amounting to 10 per cent in 1906, and this, too, in the face of rather large extensions of the system.

The total receipts of the system for the year were $1,597,176 United States gold, made up of the following items: From commercial business, $879,994; official business, $98,058; from general business, $619,124. The total expenditures for the same period were $951,-639, as follows: For the maintenance of the superintendent-general's office, $34,252; maintenance of general office, $37,198; running expenses of the various stations, $429,888; expense in connection with official business, $20,910; all other expenses, $429,391.

According to the showing the gross profits for the year were $645,537, and that, too, from a working capital of $1,232,000. And after paying the Government royalty of $129,-807 the administration was still able to pay the private shareholders a dividend of 10 per cent; all of which goes to show that the telegraph, like the railways, has come to be regarded by the Chinese as a public necessity, and likewise the telegraph, like the railway, has a great future in China.

The telephone also, while still in an undeveloped state, is destined to play an important part in the development of the new China. Wherever the telephone has been used by the Chinese it has made a lasting place for itself, and at the present writing there are many systems in various parts of the Empire being talked of and organized, many of which are certain to be installed, and since the Chinese do not manufacture telephonic or telegraphic supplies there should, in the near future, be an extensive market in China for this line of goods.

SPINNING INDUSTRY IN NIPPON

The *Jiji* publishes a report on the spinning industry of Japan prepared by Messrs. Tata & Co. of Osaka which pronounces it to be in a most flourishing condition. According to this statement the total number of the existing spinning companies is 43, which are all working, and the monthly output of yarn is about 80,000 bales, the consumption of raw cotton being 37,500,000 pounds on an average, consisting of 16,500,000 pounds of Indian, 10,000,000 pounds of American, 9,500,000 pounds of Chinese, and 1,500,000 pounds of other qualities. Almost 80 per cent of the spinning companies are contracted to deliver the whole production of yarn during this year, and about one-fifth of the producting in January, February and March next is also contracted for. Not a small quantity of the production in May and June next is also contracted for. The monthly output of cotton calico is 11,500 yards, the yarn required amounting to 3,500,000 pounds. The whole production of this year is contracted for, and one-third of the production for the first half of next year.

AMERICA'S FAR EASTERN POLICY ANNOUNCED

The visit of the Honorable Secretary of War, William H. Taft, to the Orient marks a new epoch in the policy of the United States towards its Far Eastern problems. All Americans, who cherish the good name and prestige of their country, must feel a keen sense of appreciation and pride in the utterances of Mr. Taft in his speeches at Tokio, at Shanghai, and again at Manila, in which he has pointed out clearly where the American government stands and its attitude in regard to the national interests in the Orient.

The Far Eastern Review takes great pleasure in reproducing these speeches in full, together with the speech of Mr. Thomas F. Millard on America's Opportunity in the Orient delivered at the American Association banquet at Shanghai.

SECRETARY TAFT'S SHANGHAI SPEECH

Mr. Chairman and Gentlemen:

For the courtesy and hospitality evidenced by this beautiful banquet, I wish to express to you my grateful acknowledgment. It is a great opportunity and pleasure to meet the prominent citizens and residents of this great city. Shanghai is the business center and in some respects the political center of the Empire of China.

ONLY AN AMERICAN CITIZEN WITH NO OFFICIAL AUTHORITY

On my way to the Philippines as a representative of the President of the United States to signify the importance which he attaches to another step in the extension of popular self government in those Islands, I am here only by the way as a traveler, accredited with no official authority or duty or message in respect to China. What I am about to say in respect to China, therefore, is said as an American citizen and not as a representative of the American Government.

SALE OF THE PHILIPPINES

One word in respect to the Philippines before I come to America's relation to China. Americans interested in Oriental and Chinese trade naturally look to the Philippine policy of the government as having a bearing upon the attitude of America toward the Oriental in general. Reports have been circulated with an appearance of authority throughout this part of the world that the United States intends to sell the Philippines to Japan or some other country. Upon that point, I do not hesitate to express a decided opinion. The Philippines came to the United States by chance, but that government assumed a duty with respect to them and entered into an implied obligation affecting them, with the people of the Philippines, of which it would be the grossest violation to sell the Islands to any other power. The only alternatives which the United States can in honor pursue with respect to the Philippines are either permanently to retain them, maintaining therein a stable government in which the rights of the humblest citizen shall be preserved, or after having fitted the people for self government, to turn the Islands over to them for the continuance by them of a government of the same character. It is enough to say here that there is not the slightest danger of a sudden cessation of the present relation of the United States to the Philippines, such as would be involved in a sale of those Islands, and that for our present purpose the attitude of the United States toward China must be regarded not alone as a country interested in the trade of China, but also as a power owning territory in China's immediate neighborhood.

THE POLICY OF THE OPEN DOOR

The policy of the government of the United States has been authoritatively stated to be that of seeking the permanent safety and peace of Chinese, the preservation of China territorial and administrative entity, the protection of all rights guaranteed by her to friendly powers by treaty and international law, and, as a safeguard for the world, the principle of equal and impartial trade with all parts of the Chinese Empire. This was the policy which John Hay made famous as that of the "open door." By written memorandum, all the great powers interested in the trade of China have subscribed to its wisdom and declared their adherence to it. The government of the United States has not deviated in the slightest way from its attitude in this regard since the policy was announced in 1900.

THE HON. WILLIAM H. TAFT, SECRETARY OF WAR, ON BOARD THE MINNESOTA

EXTENT OF AMERICAN CHINESE TRADE, AMERICAN POLICY

I am advised by Mr. Millard, who has written much and well on the Far East and has given close attention to the statistics of the trade between China and the various countries of the world that the trade, both export and import, between China and the United States is second only to that of Great Britain. He says there is much difficulty in fixing the exact amount of trade because of the long established custom of treating every piece of merchandise that comes from Hongkong as an importation from British territory. It is certain, therefore, that the American Chinese trade is sufficiently great to require the government of the United States to take every legitimate means to protect it against diminution or injury by the political preference of any of its competitors. It can not of course complain of loss of trade effected by the use of greater enterprise, greater ingenuity, greater attention to the demands of the Chinese market and greater business acumen by its competitors; but it would have the right to protest against exclusion from Chinese trade by a departure from the policy of the open door. The acquiescence in this policy by all interested nations was so unhesitating and emphatic that it is hardly worth while to speculate as to the probable attitude of the United States were its merchants' interests injured by a violation of it. How far the United States would go in the protection of its Chinese trade no one of course could say. This much is clear, however, that the merchants of the United States are being roused to the importance of their Chinese export trade, that they would view political obstacles to its expansion with deep concern, and that this feeling of theirs would be likely to find expression in the attitude of the American government. Domestic business in the United States

has expanded so enormously and has resulted in such great profits as to prevent American business men from giving to the foreign trade that attention which it deserves and which they certainly would give, but for more profitable business at home. As the population of the United States increases, as its territory fills and its vast manufacturing and agricultural interests become greater, its interest in foreign trade is certain to increase. The manufacturers now take little care to pack their goods or to give them the sizes as desired by Chinese purchasers, but this stiff necked lack of business sense is disappearing. We shall soon find the same zeal and the same intense interest on their part to induce purchasers in foreign markets that now characterize the manufacturers of other nations whose home business is not so absorbing as is that of the manufacturers of the United States. While we have been slow in rousing ourselves to the importance of a trade which has grown without government encouragement and almost without business effort to its present important proportion, I feel sure that in the future there will be no reason to complain of seeming government indifference to it.

AMERICAN ATTITUDE TOWARD CHINESE DEVELOPMENT

The United States and others who favor the open door policy sincerely will, if they are wise, not only welcome, but will encourage this great Chinese Empire to take long steps in administrative and governmental reform, and in the development of her natural resources and the improvement of the welfare of her people. In this way she will add great strength to her position as a self respecting government, may resist all possible foreign aggression seeking undue, exclusive or proprietary privileges in her territory, and without foreign aid, and enforce an open door policy of equal opportunity to all. I am not one of those who view with alarm the effect of the growth of China with her teeming millions into a great industrial empire. I believe that this instead of injuring foreign trade with China would greatly increase it, and while it might change its character in some respects, it would not diminish its profit. A trade which depends for its profit on the backwardness of a people in developing their own resources and upon their inability to value at the proper relative prices that which they have to sell and that which they have to buy is not one which can be counted upon as stable or permanent.

MONETARY REFORM

I may stop a moment in this connection to say that the Monetary Commission, headed by Professor Jenks, which was sent at the expense of the United States to China to induce China to adopt a gold standard sought to effect a reform that would have inured greatly to the benefit of the Chinese people. The example of Japan and the Philippines justifies this statement. While the recent rise in the price of silver has mitigated somewhat the evils of the two standards, the elimination from business of the gambling element involved in the fluctuations of exchange due to the difference between the gold and the silver standard would be ultimately of great benefit to the merchants and the common people of China, and to the stability and fairness of oriental business. I am sincerely hopeful that it will not be many years before such a reform is brought about.

WHAT CHINA FOR CHINESE MEANS

For the reasons I have given, it does not seem to me that the cry of "China for the Chinese" should frighten anyone. All that is meant by that is that China should devote her energies to the development of her immense resources, to the elevation of her industrious people and to the enlargement of her trade and to the administrative reform of the Empire as a great national government. Changes of this kind would only increase our trade with her. Our greatest export trade is with the countries most advanced in business methods and in the development of their particular resources. In the Philippines, we have learned that the policy which is best for the Filipinos is best in the long run for the countries who would do business with the Islands.

PROSPECTIVE REFORMS IN CHINA

It is a pleasure to know that the education of Chinese in America has had much to do with the present steps toward reform begun by the Government in China. It is not to be expected that these reforms shall be radical or sudden. It would be unwise if they were so. A nation of the conservative traditions of China must accept changes gradually, but it is a pleasure to know and to say that in every improvement which she aims at, she has the deep sympathy of America, and that there never can be any jealousy or fear on the part of the United States due to China's industrial or political development, provided always that it is directed along the lines of peaceful prosperity and the maintenance of law and order and the rights of the individual, foreign or alien. She has no territory we long for, and can have no prosperity which we would grudge her and no political power and independence as an empire justly exercised, which we would resent. With her enormous resources and with her industrious people the possibilities of her future cannot be overstated.

IMPROVEMENT IN RELATIONS BETWEEN AMERICA AND CHINA

It is pleasant to note a great improvement in the last two years in the relations between the United States and China. In the first place through the earnest efforts of President Roosevelt, the administration of the Chinese immigration laws of the United States has been made much more considerable. The inquisitorial harshness to which classes properly admissible to the United States under treaty between the two countries were at one time subjected, has been entirely mitigated without in any way impairing the effectiveness of the law. The boycott which was organized ostensibly on the ground of such harshness of administration proved in the end to be a double edged knife which injured Chinamen even more than Americans and other foreign countries quite as much. Happily that has now become a closed incident, a past episode.

Again the United States has exhibited its wish to do full justice to China by a return or waiver of the indemnity awarded to it for injuries and expenses growing out of the Boxer trouble. It has been said that we have done only what we ought to do. This may be so, but a nice sense of international obligation is not so universal that it may not justly increase the friendly feeling between the parties to the transaction.

With the full approval of President Roosevelt Mr. Root secured the legislation needed to improve our Consular service and to place it on a merit basis. I do not think it too much to say that the consular representatives in China within the last decade have not been up to the standard which the importance of the business interests of the United States in China demanded. Aware of this, the administration at Washington has within the last three years given especial attention to the selection of Consuls in China. This was made evident in the selection of both Mr. Rodgers and Mr. Denby as Consul General at Shanghai. It is a new sensation for an American to come to a Chinese city and find as its consular representative one who knows the Chinese language and who understands the Chinese Empire as few Chinamen understand it. I congratulate you citizens of the United States on having such a representative of your interests in this great commercial community as Mr. Denby.

UNITED STATES COURT FOR CHINA

Finally another great step has been taken by the government of the United States to improve its relations to China. Many years ago, the Chinese Empire granted the right to citizens of the United States to reside in so-called concessions within the borders of the Chinese Empire, and there enjoy the security of living under the government and administration of law by officers of the United States. This extra-territoriality was chiefly important in securing an administration of justice in accordance with the principles and laws obtaining in the United States. It imposed an imperative obligation upon the United States to see to it that the justice thus administered by the officers whom it vested with judicial powers should be of the highest and most elevating character. I regret to say that this obligation for many years did not receive the attention and care that it ought to have had; but in the last Congress, at the instance of Secretary Root, under the guidance of Mr. Denby, then the Chief Clerk of the State Department and now your Consul General at Shanghai, with the able assistance of Mr. Denby's brother, a Member of Congress from Michigan, and of Senator Spooner of Wisconsin, a law was passed which properly recognizes the dignity and importance of the power conferred by the Chinese treaty upon the government of the United States to administer justice in respect of citizens of the United States commorant in China by creation of a United States Circuit Court for China. Our government was fortunate in the selection as the first judge of that court of a gentleman who had had four years experience in the orient as Attorney General of the Philippines, and who came to Shanghai with an intimate knowledge of the method of uniting in one administration, the principles of the common law of the United States with the traditions and conditions of a foreign country. His policy in raising high the standard of admission to the bar and in promoting vigorous prosecutions of American violators of law and the consequent elimination from this community of undesirable characters who have brought disgrace upon the name of American in the cities of China, cannot but command itself to everyone interested in the good name of the United States among the Chinese people and with our brethren of other countries who live in China. It involves no small amount of courage and a great deal of common sense to deal with evils of this character and to rid the community of them. Interests which have fattened on abuses cannot be readily disturbed without making a fight for their lives, and one who undertakes the work of cleansing and purifying must expect to meet resistance in libel and slander and the stirring up of official opposition based on misinformation and evil report. I am glad to think that the Circuit Court for China has passed through its trial and that the satisfaction which its policy has brought to the American and foreign communities in China and to the Chinese people will not be unknown to the Administration at Washington, at whose instance this court was first established.

ADDITIONAL LEGISLATION NEEDED

I have just read Judge Wilfley's opinions both in civil and in criminal matters. He has worked hard and well. He has made it plain that some additional legislation by Congress is necessary to lay down a few more general principles of law which are to govern in the extraterritorial jurisdiction of the Court in China. I sincerely hope and believe that the establishment of this court will make much for the carrying out of exact justice in the controversies that arise in the business between Chinamen and Americans. There is nothing for which the Oriental has a higher admiration than for exact justice, possibly because he is familiar with the enormous difficulty there is in attaining such an ideal. If this court shall lead the Chinese to believe, as it ought to do, and will do, that the rights of a Chinese are exactly as secure when considered by this tribunal as the rights of an American, and that there is no looking down upon a Chinese because he is a Chinese, and no disregard of his business rights because he is an oriental, it will make greatly for the better relations between the two countries.

SUITABLE UNITED STATES GOVERNMENT BUILDING NEEDED IN SHANGHAI

And now what else is needed? It goes without saying. What you need is a great government building here to be built by the expenditure of a very large sum of money so that your court and your consulate shall be housed in a dignified manner. Our government should give this substantial evidence of its apprecia-

tion of the importance of its business and political relation to the great Chinese Empire. In the Orient, more than anywhere else in the world, the effect upon the eye is important, and it must be very difficult for Chinamen to suppose that the government of the United States attributes proper importance to its trade with China when it houses its consulate and its judges in such miserably poor and insufficient quarters as they now occupy. All over the United States, Congress has provided most magnificent court rooms for the administration of Federal justice. Will it, now that it has created a court whose jurisdiction is coextensive with the Chinese Empire, be less generous in the erection of a building which shall typify its estimate of the importance of its relation to Chinese trade and the Chinese people?

SECRETARY TAFT'S TOKIO SPEECH

Baron Shibusawa, Mr. Mayor and Gentlemen of the Municipality and Chamber of Commerce and Other Distinguished Citizens of Tokio:

I beg to extend to you my heartfelt thanks and acknowledgement for this magnificent evidence of your hospitality and good will. It is a little more than two years ago since a large party of whom I was one, was the recipient of a similar courtesy and attention in this very hotel at the hands of the then Prime Minister Count Katsura. So many were we then that I ventured to compare our coming to the descent of a cloud of locusts upon this devoted land. But you stood the onslaught nobly and your treatment of us is a bright memory never to be effaced.

At that time you were engaged in a titanic struggle with another great nation but the first traces of the down of peace were appearing in the east. We Americans shall always feel proud of the part that Theodore Roosevelt, with the prestige of the headship of our people, was able to play in hastening the end of the war. Peace has come under circumstances honorable to both parties and Japan having proved her greatness in war as in peace has taken her stand in the first rank of the family of Nations. You have concluded new treaties with your former antagonist of amity and commerce and the wounds of war are healed.

The growth of Japan from a hermit country to her present position in the last fifty years is the marvel of the world. In every step of that development, even at the very beginning we Americans are proud to record the fact that Japan has always had the cordial sympathy and at times the effective aid of the United States. The names of Commodore Perry, of Townsend, Harris, of John A. Bingham, of General Grant and of Theodore Roosevelt will be inseparably connected with the history of the advance of Japan to the front rank among the world powers.

But now for a moment, and a moment only, a little cloud has come over the sunshine of a fast friendship of fifty years. A slight shock has been felt in the structure of amity and good will that has withstood the test of half a century. How has it come about? Well in the first place it took a tremendous manifestation of nature to bring it about. Only the greatest earthquake of the century could have caused even the slightest tremor between such friends. I do not intend to consider the details of the events in San Francisco. I cannot trespass on the jurisdiction of the Department of State, of my colleague Mr. Root, or my friend Mr. O'Brien, to discuss them. But this I can say that there is nothing in these events of injustice that cannot be honorably and fully arranged by ordinary diplomatic methods between the two governments conducted as they both are by statesmen of honor, sanity and justice, and representing as they do two peoples bound together by half a century of warm friendship.

It is said that there is one word that is never allowed to creep into the diplomatic correspondence between nations, however hostile, and that word is "war." But I am not a diplomat and am not bound by diplomatic usage. I can talk of war. I am not one of those who hold that war is so frightful that nothing justifies a resort to it. We have not yet reached the millenium and there are international grievances that can be redressed and just international purposes that can be accomplished in no other way. But, as one of our great generals has said, "War is hell" and nothing but a great and unavoidable cause can justify it.

War between Japan and the United States would be a crime against modern civilization. It would be as wicked as it would be insane. Neither the people of Japan nor the people of the United States desire war. The governments of the two countries would strain every point to avoid such an awful catastrophe.

What has Japan to gain by it? What has the United States to gain by it? Japan has reached a point in her history when she is looking forward with confident hope to great commercial conquests. She is shaking off the effects of war and is straining every nerve for victories of peace. With the marvellous industry, intelligence and courage of her people there is nothing in trade, commerce and popular contentment and enlightenment to which she may not attain. Why should she wish a war that would stop all this? She has undertaken with a legitimate intent in so close a neighbor to reform and rejuvenate an ancient kingdom that has been governed or mis-governed by fifteenth century methods. His Majesty, the Emperor, has shown his appreciation of the difficulty of the task by sending to Korea Japan's greatest statesman who has exhibited his patriotism by accepting the heavy burden when by his years and his arduous labors for his country in the past he has earned a right to rest. No matter what reports may come, no matter what criticism may be uttered, the world will have confidence that Prince Ito and the Japanese Government are pursuing a policy in Korea that will make for justice and civilization and the welfare of a backward people. We are living in an age when the intervention of a stronger nation in the affairs of a people unable to maintain a government of law and order to assist the latter to better government becomes a national duty and works for the progress of the world. Why should Japan wish a war that must stop or seriously delay the execution of her plans of reform in Korea? Why should the United States wish war? War would change her in a year or more into a military nation and her great resources would be wasted in a vast equipment that would serve no good purpose but to tempt her into warlike policies. In the last decade she has shown a material progress greater than the world has ever before seen. Today she is struggling with the abuses which accompany such material development and is engaged in an effort by process of law to retain the good for her people and to suppress the evil. Why should she risk war in which all the evils of society flourish and all the vultures fatten? She is engaged in establishing a government of law and order and prosperity in the Philippine Islands and in fitting the people of those Islands by general education and by actual practice in partial self government to govern themselves. It is a task full of difficulty and one which many Americans would be glad to be rid of. It has been suggested that we might relieve ourselves of this burden by a sale of the Islands to Japan or some other country. The suggestion is absurd. Japan does not wish the Philippines. She has problems of a similar nature nearer home. But, more than this, the United States could not sell the Islands to another power without the grossest violation of its obligation to the Philippine people. It must maintain a government of law and order and the protection of life, liberty and property itself or fit the people of the Islands to do so and turn the government over to them. No other course in honor is open to it.

Under all these circumstances then, could anything be more wicked and more infamous than the suggestion of war between nations who have enjoyed such a time honored friendship and who have nothing to fight for. "If this be true," some one asks, "why such reports and rumors of war?" The capacity of certain members of the modern press by headlines and sensational dispatches to give rise to unfounded reports has grown with the improvement in communication between distant parts of the world. The desire to sell their papers, the desire for political reasons to embarrass an existing government and their even less justifiable motives have led to misstatements, misconstructions, unfounded guesses all worked into terrifying headlines that have no foundation whatever. In each country, doubtless there are irresponsible persons that war would aid or make prominent who try to give seriousness to such a discussion, but when one considers the real feelings of the two peoples as a whole, when one considers the situation from the standpoint of sanity and real patriotism in each country, it is difficult to characterize in polite or moderate language the conduct of those who are attempting to promote misunderstanding and ill-feeling between the two countries.

It gives me pleasure to assure the people of Japan that the good will of the American people toward Japan is as warm and cordial as ever it was and the suggestion of a breach of the amicable relations between them finds no confirmation in the public opinion of the United States. It is exceedingly gratifying for me to have as my companion in my visit to these shores, Mr. O'Brien, the new Ambassador to Japan from the United States. We have been friends for years. I am sure you will find in Mr. O'Brien all that could be desired in one whose chief official duty it will be to preserve the friendship between our two countries.

I have already referred to the enthusiastic welcome which was accorded our party of American Congressmen two years ago by the people of Japan. So great was the kindness of his Majesty the Emperor and the officers of the Government that we were overcome with our welcome. Coming now to this country for the fourth time, I am an old story and am not entitled to any other welcome than that to be accorded an old friend who comes often. The distinction of being the Emperor's guest another time, I do not deserve and should feel it my duty to decline, enjoyable as the honor is, but for the fact that I know that his Imperial Majesty graciously adopts this course not as a personal matter but to signify to the American people and government the continuance of his friendship for the United States. It gives me the greatest pleasure and is a great honor for me to be able to bring a reciprocal message of good will from our President and our people.

THOMAS F. MILLARD'S SPEECH

Mr. Millard's speech on America's Opportunity in the Far East follows:

AMERICA'S OPPORTUNITY IN THE EAST.

Mr. Chairman and Gentlemen:

I first saw the East eight years ago, when events following upon the acquisition of the Philippine Islands by the United States of America attracted notice in our country and throughout the world. I am able to recall but little that is definite of my early impressions of the Orient. My first visit was very brief, and I carried back home little more than a vivid mental picture of an old and complex civilization, which as yet presented itself to me almost entirely through its visual aspects, a somewhat mystifying jumble of queer costumes, queerer manners and habits. It was not until my second visit, in the following year, that a realization of what the East is began to formulate in my mind. Subsequent visits followed, at comparatively brief intervals, until I am now making my sixth trip to this part of the world. Gradually the East has to me assumed a different aspect. The incidents of social life, the manners and customs which at first were so strange and interesting, almost to the exclusion of other impressions, have fallen into their correct perspective in comparison with more vital elements, and in their stead have appeared those forces of civilization which in all communities determine the conditions of human existence and the political destiny of nations; the resources of the land, and the activities which propel or retard, as the case may be, the progress of material development. The propositions involved in these conditions are the most inter-

esting I have ever had contact with, and I have come to hold the opinion that the problem of the future of the East is, in its broader application, perhaps the greatest question in respect to its influence upon the fate of nations and the ultimate destiny of the human race with which international statesmanship is now confronted.

It seems inevitable that any patriotic American whose attention is intelligently directed to the subject should begin to consider the position of the United States in respect to the solution of this problem. It is evident that our nation must be materially affected by the course of events, whatever it may be. Our position bordering on the Pacific Ocean makes our national domain actually contiguous, in a modern sense, to the countries which touch the Pacific on its western shores. We have possessions lying within the locality which must be the scene of the forthcoming evolution and where some of its results will be directly expressed. And we have a hopeful interest, through commerce, in the enormous, the almost incalculable material development which the application of modern western influence and methods to the teeming resources of China is sure to bring about. It is difficult, in any candid examination of the present situation in the East and the probabilities which lie before this locality, to escape the conclusion that the interest of the United States in them is fundamental, in so far as this expression may be applied to regions where our nation does not now exercise or expect to acquire political authority.

If I seem to dwell especially upon my own impressions of the East, it is because I believe that my own mental process in approaching these great questions is analogous to what will be, I may say to what already is, that of a considerable part of the American people. I am absolutely certain that interest and curiosity in the possibilities of the East, and particularly those of China, are rapidly growing in America, and have even now assumed important dimensions. I am able to note this not only through the publicity given in our country to events and conditions in the East, but also in my personal intercourse with people in various walks of life, and through communications which I frequently receive. Within the last few months I have received, I think, as many as fifty letters from persons in the United States inquiring about the prospects for young Americans and for American investments in China. That a person like myself, in no official or business way identified with the East, should receive so many inquiries certainly indicates that a keen interest in China is becoming widespread among Americans, and that the American people are receptive to information which tends to throw light upon conditions here. An interesting and significant intimation arising from my personal contact with people at home, and discussion with them of the Far Eastern situation, is the change in the general character of the inquiries they ply to one. Formerly people were curious about the details of Oriental life; manners, customs, clothing and what not. It is seldom, nowadays, that I am asked such questions; indeed, I am but poorly equipped to answer them, for these are not the Oriental phases which have most interested me, and I know comparatively little about them. What Americans seem to want to know today is something about the commercial and industrial possibilities of the East, and the political conditions upon which these must, in some measure, eventually turn. They are particularly interested in the future of China, which many already recognize as the key to the new Orient whose coming even limited vision may now clearly foresee. To such inquiries it has been a great gratification to me to feel able to speak encouragingly about the future of this great Empire, and the integrity and stability of its people; and enthusiastically of the prospects which, with equal opportunity, await American enterprise here. I find among intelligent Americans a growing appreciation of our position in the East, of the interests, both actual and prospective, which we are called upon to promote and protect here, and a disposition to insist that these interests *be* promoted and protected by our Government. There is, also, a fairly intelligent comprehension of the problem with which China is confronted, and a sympathy with her difficulties. There is growing realization that the United States should be directly concerned about the amelioration of these difficulties, and the stable establishment of the Empire upon a more modern basis. I find also that this concern is founded not upon an evanescent sentiment, but upon appreciation of a genuine and lasting community of interests—a community of interests which, in my opinion, has no proportionate parallel with the relations of our nation and any other Oriental state.

It is true that much of this sentiment among Americans at home is as yet somewhat nebulous, and hardly formulated into a conviction which will immediately lead to extensive na-

THOMAS F. MILLARD.

tional activity in the East. But I am glad of this opportunity to assure Americans whose lot is cast here that this unity of opinion cannot now be far distant. The most casual observer of the never-ending evolution of public opinion in the United States must have noticed a growing demand for the development in the administration of our Government of what, for want of a better term, I may call a National Statesmanship in our foreign relations. By this I mean a statemanship which shall be above the petty manipulations of party politics, and which shall direct the broader interests of the nation along the lines of a definite and, if possible, a far-seeing policy. There exists in America, as in all countries, a class of persons who regard all seeming innovations with uneasiness, and which operates as a check upon a too sudden departure from old conceptions and forms. This element has consistently opposed, at the time when they were first proposed, all additions to the national domain, and all extensions of our national activities which might upon occasion call for direct intervention of the Government. None of the forebodings which invariably attended each step in our national growth have so far been justified by the course of events. To those of you who, noting the opposition of some of our public men to any active extension of our national opportunities in this part of the world, fear that America will permanently decline these opportunities and suffer them to lapse for want of proper support and encouragement, I may express my opinion that this will not be the case. I believe that the men of my generation will adopt the broader view, and I may further point out that the men of my generation will soon direct our national affairs; in fact, they already exercise a strong influence. There is nothing in the history of the American people, or their present status and conditions, which warrants the assumption that the generations now approaching maturity and those which are to come will fail to display the same courage and capability in meeting the questions which will confront them, the same foresight and disposition to rise to opportunity that characterized our predecessors.

That our nation has reached another turning point in its development is generally recognized. The Spanish-American war and the unexpected acquisition of new territories which was among its results brought new problems and responsibilities. But while these causes gave, for the moment, new interests and outlets, the greater and determining impulse toward wider fields must be sought deeper among the well springs of our national energy. It lies, in my opinion, in our economic situation. We have reached a crisis of our industrial development. I do not mean that we no longer have room to grow within. The resources of our own country are as yet only partially developed, and for many years to come the greater part of our energies will continue to be expended upon them. But in the equation between our swelling industrial output and our home consumption, enormous as this latter factor now is, we have come to a point when we must seek an outlet in new markets or soon see our industrial condition arrive at a state of arrested progress. Since such a condition must re-act upon our prosperity at home, and affect the future of our nation in comparison with the other great nations of the world, it is clearly the province of our statesmanship to look beyond the needs of the moment and find new markets for our products, and to devise ways and means to secure for them equitable entrance to those markets.

This is one of the problems which confronts the new National Statesmanship which America must and *will* have; and in scanning the world for the commercial opportunity necessary to its fruition, the eyes of our statesmen cannot fail to turn to the East. There are no longer any geographical mysteries in the world, in the sense of undiscovered lands suitable for the profitable application of human activity The sphere which we inhabit is defined so far as terrestrial limitations are concerned; and if we have not yet fathomed its economic possibilities it is because nature always holds some secret in reserve to be revealed only at the imperative need and demand of mankind. Here in China alone are more than four hundred millions of intelligent and industrious people, living in the temperate zone, and inhabiting a land which is a natural Empire. Here, too, is a great nation arrived at a turning point. There is something more than accident in this coincidence. Am I going too far to declare that China and America need each other; that in some important matters their futures are inseparably linked? I think not. Can anyone conceive that this broader statesmanship which we must have, which we *will* have, will fail to rise to the possibilities which are involved in the relations between the United States and China? It is not always possible for a Government by its separate action to create trade where none has before existed, although history affords many examples of such accomplishment; but it can always pave the way for trade. I believe that it is the duty of a Government to do this. The time has arrived in our national history when our statesmanship must climb a lofty intellectual mountain, survey the world, and plan for the glorious future which all Americans believe stretches ahead of our country. It is not possible that such a survey can fail to include the Orient, where two-thirds of the inhabitants of the earth, just waking to new conditions and opportunities, are congregated.

This new American statesmanship will find plenty to do in China today. Owing to extraordinary conditions attending foreign residence and business throughout the Empire, we should send to our consular service here only the best men who can be induced to enter it. The late John Hay once remarked that the position of United States Consul-General at Shanghai is the most important post in our consular service. There is no doubt that this comparison is substantially true, and in proportion to

the importance of the ports where they are located this is also true of our other consulates in China. In no other part of the world do our consuls have to perform such complex, varied and important duties, and only a high degree of intelligence and integrity should be summoned to the work. It is a cause for congratulation to note the great improvement in this respect in recent years.

In the field of diplomacy there is no less important work to be done. Modern conditions are slowly encroaching upon the traditional functions of diplomacy, and may in time completely alter its duties and procedure, but it is still a convenient method of communication between governments, and offers opportunity for tact and talent. I unhesitatingly express the opinion that in the whole world there is not now a diplomatic post so important to the United States as our legation at Peking It is one of the few posts where there is still play for *constructive* diplomacy, and our Government should not neglect the chance afforded to not only advance our legitimate interests in China, but also to extend advice and aid toward the rehabilitation of the Empire. This is not a period for indifference or hesitation, but the hour when a friendly hand may properly be extended as support and guidance upon a difficult path.

A problem of purely practical character which invites the immediate action of the United States is to prepare a solid foundation for commercial intercourse and American enterprise by establishing upon a firmer basis the legal status of American residents in China and of American interests here. Happily, an important step in this direction has already been made, through the creation of a United States Court presided over by a judge of high attainments and integrity. It will be necessary, however, for Congress to extend the value of this court to the community and to American commercial interests in China by amplifying and more clearly defining its powers, and by providing it with suitable quarters for the performance of its functions. Established now less than a year, this court has already performed an important and necessary work by contributing its influence toward the establishment of American social and business standards in China on the same plane they occupy at home. It has made a promising beginning in the long neglected work of clarifying our status under the law of extra-territoriality, so that the uncertainty and confusion formerly so detrimental to satisfactory intercourse with native and other foreign residents of the country may be eliminated. The progress of this court is highly appreciated at home, especially by the business element of the country, which fully recognizes that there is no secure highway for commerce except along the path of law and equity. As long as extra-territoriality obtains in China, it is the plain duty of our Government to labor for a better order of things, and to remove as far as is possible all causes for friction. I think that a commercial bureau, whose exclusive function will be to promote trade between America and China, and to act coordinately with our consular service, should also be established here, and provided with the personnel and equipment necessary to pursue this important work.

The present and future invites Americans to look farther afield, beyond our national boundaries if need be, for whatever of material prosperity and benefit our energy and intelligence can accrue to ourselves and to our country. Nor does this disposition imply peril or disadvantage to other nations and peoples. On the contrary, American activity, enterprise, and influence, where it is representative of our institutions, is, when applied to Oriental nations, likely to be at least as beneficial to the governments and natives of these countries, and to all persons residing here, as similar activities of other nations. While we pretend no altruistic motive in extending our national interests in the East, beyond the fact that they are pressed in a spirit of friendly reciprocity, we believe that the East will benefit as much by extensive relations with us as we will through relations with it.

Let none from premature judgment concerning American policy toward the East because in the immediate past it may have seemed, on the surface, to be hesitating and uncertain. This is the evidence of caution, not of timidity; of a wish to well consider the object sought and the way to properly attain it, not a fear of any passing consequences which may attend. If at this moment I have any deep conviction, it is that the American people will insist upon taking a proportionate part in the development of China, extending such encouragement and aid as may be fitting and acceptable, and what the American people insist upon, the Government of the United States will be compelled to undertake. The seeds of this insistence have already been sown. And in pursuing an American policy in this part of the world America will not be bound by effete traditions, by doubts and fears accumulated through centuries of narrow views and prejudices, but will take hold of the situation as it presents itself today, and as it premises for the future. She will not ignore the experiences of our western predecessors and associates in this field, but will bring to the task her own conception of the problem and her own methods for solving it. I believe that many here present will live to see some portion of a harvest which will be reciprocal, we hope and trust, to Orientals as well as ourselves, reaped and garnered.

THE KAMPAR ELECTRIC INSTALLATION

The opening ceremony of the electric installation belonging to the Société des Etains de Kinta at Kampar was performed on Saturday by His Highness to Sultan of Perak, in the presence of Mr. Birch, Resident of Perak, and a numerous gathering of the Kinta officials and special guests, says the *Times of Malaya.*

At 5.45 p. m. His Highness arrived at the Power House and was escorted into the house by M. Legros—the manager of the company's mines—and the staff, followed by the guests. His Highness having taken up a position near the main engine with Mr. Birch, M. Legros addressed the company.

After expressing his gratitude at the presence of His Highness, the Resident, and company, as well as thanking the Perak Government for having so kindly granted the company the necessary authority with regard to carrying out the work, he proceeded to read the description of the installation. A reservoir having a capacity of 40,000 cubic feet—constructed at the water head of a water-fall artificially created by the diverting of the Rawang river at a point situated 1830 feet above the level of the engine house—is connected to the house by a line of pipes 6,500 feet in length, the diameter gradually decreasing from 80 inches at the middle to 12 inches in the lower part. It is made with mild steel plates rivetted and flanged, the thickness of the metal gradually increasing from one eighth of an inch at the upper to three eighths of an inch at the lower part. These pipes weighing one hundred and fifty tons were made at Grenoble. These pipes penetrate into the basement of the engine house, two branches going to the turbines respectively. Owing to the high pressure of the water on its arrival into the turbines, the quantity required by both engines—together supplying 500 horse power—is only twenty-six gallons per second, the water reaching the paddles of the turbines at a speed of two hundred feet per second. Only one opening of less than four square inches is sufficient to feed each turbine. The energy produced in the wheels is immediately absorbed by these alternators which supply electric triphaseous current, under a tension of six thousand volts, with fifty periods per second. This high tension order has been adopted in order to be able to transport the energy to great distances with the smallest possible loss.

This installation has been formed with the sole idea of economising the high fuel expenses of the Temoh and Kampar mines belonging to the company, as well as to supply the town with as much public and private light as possible; and with the possibility of new lands, far remote in the jungle and miles away from cartable roads being opened up through the ability of the wires to supply them with the necessary energy.

SHANGHAI PUBLIC IMPROVEMENTS

The following is an excerpt from the report of the municipal engineer at Shanghai to the council for the month of July showing the status of the public improvements there:

Works in Progress.—West Hongkew Police Station. Quarters and Godown at Gaol. New Transformer Station at Electricity Works. Police Quarters Gordon Road (Foreign Police.) Gurdwara for Sikhs. Indians' Cookhouse, Central Police Station. Foundations for boilers, machinery, etc., Electricity Works.

Garden Bridge.—Chekiang Road Bridge. Concrete Bunding Soochow Creek. Repairs to North Szechuen Road Bridge. Erection of steamroller shed Yunnan Road. Hardwood bunding Hongkew Creek between Range Road and Thorne Road. Hardwood bunding Yangtszepoo Creek, south of Yangtszepoo Road. Bricking and metalling Lay Road by convict labor. Repairing bridges Jessfield Road. Laying 3-ft. 0-in. culvert Gordon Road north of Sinza Road. Cement floor and drainage to new quarters at Gaol. Painting and varnishing exterior and interior of Municipal Hospital Range Road. Annual painting of Municipal Buildings, etc., etc.

Works Finally Completed.—Re-erection of Margary Memorial in Public Garden. Repairs to North Thibet Road Bridge, Pootung Cemetery Jetty, Peking Road Pontoon and Bridge, Russo-Chinese Bank pontoon and bridge, Soochow Creek landing stages. Bund Foreshore stone slope. Bunding at Soochow Creek, Brenan Road.

Plans Completed.—Detail drawings for pylons to Garden Bridge. Working drawings Police Depot Gordon Road. Plan for timber jetty Soochow Creek opposite Santai Road.

Garden Bridge.—The abutments and pier are now complete with the exception of jointing the top string course and fixing the anchor bolts. The temporary footbridge connecting Astor Road with the Public Garden was opened to traffic on the 12th instant. The temporary bridges over the cofferdams were then removed and the works fenced off.

The representatives of the contractors for the steel work (Messrs. Howarth Erskine, Ltd.) arrived on the 25th and the necessary arrangements are being made for handling the steel immediately it arrives. A commencement has been made with the work of filling up and dismantling the north and centre cofferdams.

Chekiang Road Bridge.—The whole of the pile driving for the north abutment has been completed. The south abutment has been raised 17-ft. 0-in. that is, to within 7-ft. 0-in. of the bearing plate level.

Tramways.—The track has been laid across the new Skew Bridge culvert in Bubbling Well Road.

Police Training Depot.—This building has not yet been commenced owing to the delay in acquiring the additional land on the north of the site.

Lighting.—The lighting of a portion of Gordon and Markham Roads with incandescent gas lamps has been carried out.

Works Completed on Road Widening and Extensions.—Works have been completed on Tsepoo, Kansuh, North Szechuen Road Extension, Wonglo, North Shanse and Fearon Roads.

FORMOSA TEA REPORT

Since the first of August the weather has been fine, and the much-needed rain is now beginning to make itself felt in the lighter arrivals. Should we get no rain during the next fortnight we may look for a scarcity of low grade Oolongs, and what promised to be a bumper crop turn out little, if any, in excess of last season's figures, writes the *China Mail* correspondent.

Our exports for August are as follows:—

To U. S., via Suez, from Keelung	803,223
" " " Pacific do.	1,717,253
" London via Amoy	128,085
" U. S. do.	148,806
" Amoy	31,210
" Foochow	4,115
" America, via Japan	145,211
Total—lbs.	2,977,903

THE INSULAR LUMBER COMPANY

Among the resources of the Philippines as yet undeveloped, the rich forests take a prominent place, and from indications capital is beginning to realize the advantages offered for investment in the lumbering industry which is as yet in its infancy. Among the pioneer companies organized since American occupation that have met with success is the Insular Lumber Co. now operating with the largest plant East of Suez on the island of Negros. The company has orders that will take it several years to fill and the forest tract contains sufficient timber to supply the plant for 40 years working at its present capacity of 100,000 feet every ten hours.

The Insular Lumber Co. was organized in New York State with a capital stock of $1,000,000 gold, $900,000 of which has been issued. The president is Mr. W. P. Clark, of Belmont, New York, and the head of the well known firm of Messrs. Clark Bros., manufacturers of saw mill machinery, etc., of Belmont; the treasurer is Mr. Charles E. Sherman, a wealthy mining man who is interested in large properties at Nome; the secretary is Major W. P. Reid of New York, and the directors are Mr. W. P. Champney, president of the Eberhardt Manufacturing Co., Cleveland, Ohio; Mr. C. A. Nicola, of The Stone Myer Lumber Co. of Cleveland and Mr. A. Burlingame Johnson of Manila, Managing Director.

The tract included in the company's concession is described by the forestry bureau as follows:

"The tract of the Insular Lumber Company is situated in the municipalities of Cadiz and Sagay, Province of Negros Occidental, Island of Negros, P. I., approximately in latitude 10° 50′ north and longitude 123° 30′ east of Greenwich. Its area is 69 square miles, or 44,160 acres (18,000 hectares), of which approximately 39,660 acres (16,060 hectares) are forested and the remaining 4,500 acres cultivated, waste land, and recent clearings. The tract lies on the lower slopes of Mount Silay, just back of the coastal strip of sugar lands, here about 6 miles wide, and consists of two adjoining parts, the upper and smaller of which lies to the south of the lower along the Himugaan River. It is a part of the large and similar forest which extends from Escalante to Silay, some 50 miles, lying 6 to 15 miles back from the coast and extending far into the interior. In some places, as on the Himugaan River, it occupies rolling and hilly lands, and in others, as near Silay, it has been driven back to the steep foothills."

THREE VIEWS OF THE INSULAR LUMBER CO.'S NEW MILL

VIEWS OF THE INSULAR LUMBER CO.'S CONCESSION IN NEGROS SHOWING FOREST, RAILWAY AND COTTAGES BUILT BY THE COMPANY FOR ITS EMPLOYEES

In all this area there is probably about ten square miles not covered by dense forest but the balance of the tract, according to the most conservative estimate, will average at least 40,000 board feet an acre.

The first operations of any moment on this tract were inaugurated in 1903 when the Iloilo Electric Co. secured a license to cut 100,000 cubic feet of timber in the sitio of Sanghai and installed a saw-mill with a capacity of 15,000 feet b. m. a day. In 1904 the Insular Lumber Co. was incorporated under the laws of New York and took over the interests of the Iloilo Electric Co. in this tract and in addition secured the present license agreement with the Insular Government to exploit the tract now under its concession for a period of twenty years.

The new mill recently completed is situated at the mouth of the Himugaan River where the product of the mill may be transported by boat. The shallowest point in the river, which is a tide water stream, is nine feet at high tide.

The mill, complete with the latest and most modern equipment in machinery, etc., cost about ₱200,000.

It was built by Clark Brothers Co. of Belmont, N. Y., the president of which company is also president of the Insular Lumber Co. It is a nine foot band mill with 14″ saws and an eight foot band re saw. It has steam feed; steam nigger, power set works, live rolls, automatic trimmers, gang edger, bark mill, automatic stokers, sorting rolls and in fact every modern labor saving device known to the trade.

The power plant consists of a 450 h. p. double cross compound Corliss engine and 550 horse power boiler capacity. A complete fire fighting system will be installed at once with standard fire plugs distributed about the yard and around the mill. An electrical plant has arrived and will be installed so as to be able to run the plant two shifts, thus doubling its capacity.

The main mill building is 42′ × 240′, two stories high, while the central section is three stories, the third being occupied by filing room machinery.

In addition to this equipment sorting rolls and other modern machinery have been installed which make the plant ideal.

All the logging is done by machinery, not an animal being employed in any capacity about the plant or the tract.

The logs are snaked by means of donkey engines and surface cables to the forest railway which transports them to the river bank, where they are dumped into the company's boom. The railroad is a 3′ 6″ gauge and extends at the present time about two miles from the river into the tract. The logs are snaked by the donkey engines and surface cables from about 1500 yards on either side of the railroad so that the area covered is large. The donkey engines are moved from place to place under their own steam.

Previous to the building of the forest railway the donkey engines and surface cables snaked logs in some instances from a distance of over one and one-half miles to the mill from the dense forest. At the present time the company has two locomotives in operation, but another has been ordered from The Lima Locomotive & Machine Co. of Lima, Ohio, which is expected to arrive this mont hand will be installed on the road immediately. It is estimated that, running the mill at its fullest capacity

of two shifts a day, it will not be necessary to extend the railroad more than two miles per annum, owing to the density of the forest.

The forest consists principally of three varieties of wood, all of which have a high commercial value. The Balacbacan or Philippine mahogany is a wood that runs from 2 feet to 7 feet in diameter and stands from 100 to 125 feet in height without a limb and makes up about the greater amount of the available timber. Apitong found there has been tested by the Forestry Bureau and demonstrated the highest tensile strength of any known variety of Apitong. About 18% of the concession is covered by this wood.

In addition to these two valuable woods there is the Almon (white lauan). This wood is very strong and durable, free from knots and consequently there is less waste than in woods not so constituted.

All these woods are in great demand and with the mill running at full capacity it is impossible to fill local orders. During the year, several sample shipments of Philippine mahogany have been made to the United States and a contract has been entered into with a large American firm to handle five million feet b. m. annually of this wood alone.

The company employs Filipino labor under American supervision. The main force operating the machinery is comprised of expert American mechanics and under their direction the Filipinos operate the auxiliary machines. All the felling, snaking and hauling of the logs to the mill is mainly accomplished by the native crews carefully supervised by American foremen.

Cross-cut saws are used in felling the trees and so expert have the Visayans become that it is very seldom that the trees cross in falling, or break. Natives cut up the trees into proper lengths and handle the cables in snaking most expertly, taking logs out of the most difficult positions most successfully and with due care being exercised to preserve the donkey engines and the cables. They are also expert at splicing cables and in handling the engine. A well-equipped machine shop is being operated in connection with the plant by native workmen under the direction of the master mechanic.

There are about 400 Visayans on the payroll, and this number will be increased from time to time. The company provides sanitary homes for the natives, as is shown in an illustration accompanying this article. Each building in the different groups has three rooms where the workman may bring his family and live much more comfortably than in the nipa shacks on the plantations. Scrupulous cleanliness is required and a medical officer has been engaged by the company to look after the health of all the employees. The company has built an hospital where operations are performed and all are treated free of cost. The company has built several groups of these homes for the natives, making in all about 100, for the use of the laborers, and so far they are very contented and happy in their surroundings.

In addition to the provision made for their comfort and health, the company has built schoolhouses where the children of the employees may have the benefit of a liberal education. The province supplies the teachers and the text books only.

Law and order is maintained in all the villages on the company's concession by several policemen commissioned by the province and paid by the company. Gambling is restricted and no outsiders, agitators, or drones are permitted to loaf about any of the camps. Every able-bodied man, not a toiler, is considered a trespasser and is treated as such. The company takes a paternal interest in its employees and in sickness sees that the wants of the families of the afflicted are supplied. A company store has been established in connection with the mill and a market for local product is maintained where the farmers and others may offer their produce for sale every Saturday.

The company is equipped with its own transportation having purchased the fleet of the Philippine Transportation & Construction Co. These vessels are used to carry the lumber to Iloilo, Cebu, and Manila, the principal markets in the island and to carry supplies to the plant.

As soon as the electric light plant ordered has been installed the mill will be operated night and day. This will increase the output to 200,000 feet b. m. a day.

Mr. Johnson, the managing director, is satisfied with the native labor employed and taking everything into consideration claims he gets better results for the outlay in this direction than the mill owners in the United States from the labor they find available.

"The native labor utilized in every branch of our work has never given us any trouble," he said. "As a rule I have found it steady and reliable. We have many natives who have worked with us steadily for over three years. All the labor necessary has been available as required. It is true that it has been necessary to provide careful supervision of the natives at all times and great patience is exercised on the part of the white foremen. Very fortunately we have experienced, practical millmen in all the supervising positions, who are familiar with native labor, and the satisfactory results obtained are entirely due to this fact."

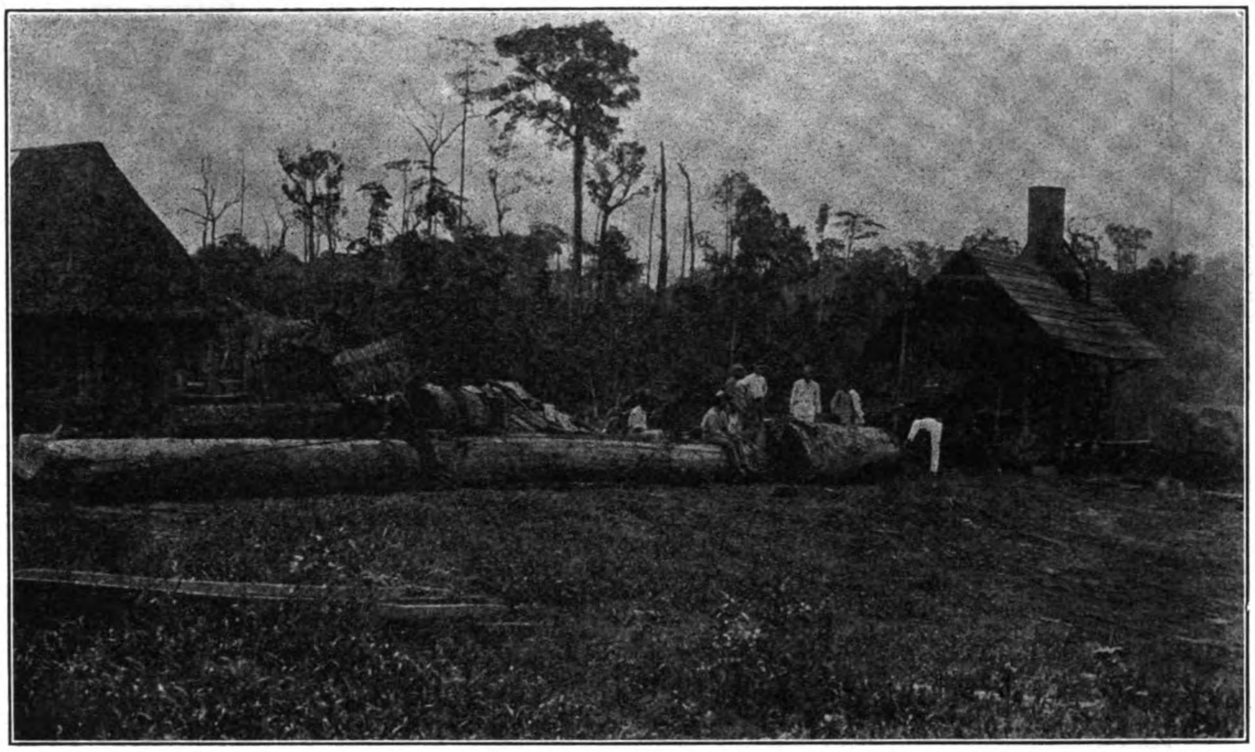
Asked as to the hardships, if any, of government supervision or excessive forestry dues, the managing director declared that in all the time the company has been operating, he has met with nothing but hearty co-operation on the part of the Forestry Bureau. The government collects an internal revenue of from one to two dollars gold a thousand feet and a percentage on manufacturers' gross sales of one-third of one per centum. The entire taxation is much less than the stumpage dues paid in the United States. The managing director is thoroughly satisfied in every respect with conditions in the Philippines and believes that capital will soon be brought to a realization of the many splendid opportunities for investment in the archipelago.

The Insular Lumber Co.'s mill is operated under the immediate direction of the following staff:

Superintendent, J. C. Nichols; chief millwright, E. E. McVicker; master mechanic, J. C. Penny; medical director and auditor, Dr. J. A. Rafter.

It is the intention of the management of the company to export a large percentage of its output and to supply the local market with the surplus. The China market will be given attention but it is not expected that China will take a very large quantity of this grade of lumber. The demand there is for poor grade lumber, which can be secured for less money elsewhere.

Sample shipments have been shipped to America of the company's Philippine mahogany, with the result that two different parlor car and street car manufacturers have used it and declared it superior to Central American mahogany.



HAULING ENGINE AT THE LANDING OF THE INSULAR LUMBER COMPANY

HIS EXCELLENCY D. ARTURO BALDASANO Y TOPETE, CONSUL-GENERAL FOR SPAIN AT MANILA

Sr. Don Arturo Baldasano y Topete, who is now serving as consul-general for Spain at the capital of the Philippines, is the nephew of the famous Admiral Topete, who was prime minister at Madrid during the Spanish revolution with General Prim. Señor Baldasano is a native of Madrid and at the present time few if any diplomats are more widely or more favorably known in diplomatic circles. He entered the consular service and was appointed second class consul at Singapore in 1880 and remained at that post until 1883 when he was promoted to the grade of first class consul and transferred to New Orleans, U. S. A. He served there in that capacity until 1888 when he was again promoted to the rank of consul general and given station at Quebec, Canada. Here he served from 1888 until 1890 and from that time until 1907 he served as consul-general at New York for three distinct terms. These were divided as follows: from 1890 to 1893; 1894 to 1897 and from 1905 to 1907. His service in the United States and Canada extended in all over a period of 15 years. During the interval between 1897 and 1905 he was appointed consul-general to Algiers and later to London. While at London he was appointed to Hamburg, but later this was changed and he was sent to Genoa instead. In 1905 he was appointed to New York and early in the present year he came to Manila on Special Appointment.

As an indication of the high regard in which His Excellency is held by his sovereign and in recognition for his valuable services, the following list of decorations among many which he received may be taken cognizance of:

The Grand Cross (la Gran Cruz) entitling him to the rank of His Excellency.
Caballero de Carlos III.
Cruz de Tercera del Merito Naval.
Medalla de Cuba.
Comendador de Corona de Siam.
Comendador de la Revencion Africana de Liberia.
Caballero de Cristo de Portugal.
Medalla de la Sociedad Geografica de Madrid.

HIS EXCELLENCY DON ARTURO BALDASANO Y TOPETE, CONSUL-GENERAL FOR SPAIN AT MANILA

His Excellency has an interesting family of six sons and two daughters, all of whom were educated in the United States. Louis Baldasano y Lopez, the sixth son, took a course in mining engineering in King's College, London, England, where he graduated. This young man is making an enviable reputation in the mining world already although he is but 22 years of age. He is special representative of Messrs. Birch & Co. of London, one of the largest dealers in mining machinery in that city. The young engineer is now looking after the interests of his firm in Mexico and Central and South America. One of his most important accomplishments is the completion of a monster catalogue in Spanish with all its intricate terms and compilations for his firm. It comprises 650 pages and is splendidly illustrated throughout. The young author is to be congratulated on his achievement.

In all His Excellency was the father of seven sons, the eldest of whom died in New York about sixteen months ago. He had graduated in mechanical engineering from Steven's Institute, Hoboken, N. J., in 1897, and was associated up to the time of his passing out with the firm of Milliken Bros., New York. The death of this young and promising member of his family was a severe shock to His Excellency and influenced his leaving NewYork for the post at Manila.

MINING AMBER IN BURMA

Burmese amber is in good demand at fair prices, reports Consul-General W. H. Michael, of Calcutta, who adds:

It has a rich color, is hard, and takes on a beautiful polish. It is made into beads, which are used in the manufacture of rosaries and

LUIS BALDASANO Y LOPEZ, M. E.

necklaces. Burmese amber is mined in the most primitive way, as indeed is almost all kinds of mining done in that quaint country of rich resources. Usually amber mining is done by Burmese who have finished their harvest work and have nothing else to do Small parties form and dig down near to where amber has been found. One man digs and another hauls up the dirt with ropes, each man taking his turn at the bottom. They go down to a depth of 45 feet, and if no amber is found they abandon the hole and try again in some other place, always near to where amber has been found.

Through an inadvertence, proper credit was not given for the illustrations appearing in the September number, of views of prominent buildings in Hongkong. They were published through the courtesy of the publishers of *The Island*, an interesting and enterprising weekly of Hongkong.

NEW RUBBER COMPANIES

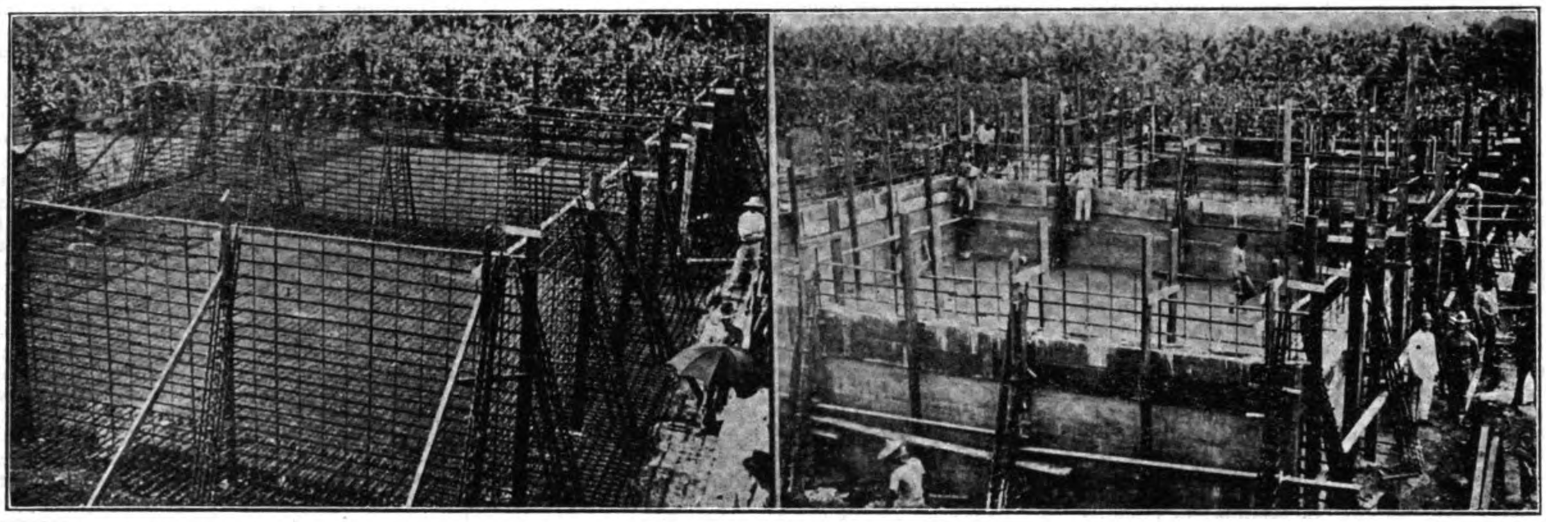
The Sungei Salak Company, with which Messrs. Lyall Anderson and Company are connected, is expected very soon now. Preliminary circulars were sent out about this Company, and good support was obtained, but the bringing out was suspended till a report on the properties had been obtained. This has now reached London and is of a favorable nature.

This company has been formed to acquire two rubber estates comprising about 3,078 acres in the Malay Peninsula.

The capital is £70,000 in £1 shares, of which 41,000 are offered for subscription at par. The purchase price has been fixed at £28,000, payable as to £14,000 in cash and £14,000 in shares, which seems fairly moderate as things go, but it should be noted that out of some 147,000 trees planted none will be ready for tapping till 1911 and 108,000 will not be ready illt 1913. It will therefore be at least seven years before any return on the capital can be expected, and the conditions in the rubber market may change very considerably meantime. It is a fair speculation, and appears to start under favorable auspices.

WATER AND SEWER SYSTEMS AT JOLO AND PARANG PARANG

With the completion of the contracts entered into with the military authorities by the American Hardware & Plumbing Co. of Manila the military post and town of Parang-Parang as well as that of Jolo were equipped with the most modern systems for the supply of pure water and a drainage scheme of the most sanitary character. These contracts were entered into on June 15, 1906, and the contracts were completed June 4, 1907, the day set by the terms of the contract. The outlay for the work at the two towns amounted to about ₱220,000.



WATER SUPPLY RESERVOIR AT JOLO BUILT OF REINFORCED CONCRETE AS IT APPEARED AT TWO STAGES IN CONSTRUCTIGN

The sewer system of the town of Jolo comprises a main 18-inch sewer with ten laterals covering the area of the walled city of Jolo and the Asturius military barracks, making in all about two miles of pipe. All the sewer pipes are of Australian glazed stoneware. The discharge is into the bay or open roadway and is conducted through two lines of 12-inch universal cast iron pipe. It is believed that this is the first universal pipe in use in the Philippines.

The waterworks is a pumping system, pumping water from a small river with a dam or reservoir to an altitude of about 90 feet nearby, into a reservoir constructed of reinforced concrete 40×80 feet and 10 feet 6 in. in depth. This reservoir is divided into two compartments each 40 feet square, so that one may be used while the other is being cleaned. Sixty tons of steel were used in the construction. The main supply pipe is of cast iron and runs about 4,000 feet to the main street of the walled city, where various laterals supply the government buildings.

Jolo has another water supply. It is a gravity system with an auxiliary pump service which has been turned over to the civil authorities for local supply.

These two systems are the property of the military in their entirety and were installed under the supervision of the quartermaster's department at a cost of about ₱100,000.

In connection with the water system there are 17 fire hydrants built for two and one-half inch hose and carrying a pressure of 40 pounds from the reservoir, but so arranged that direct pump pressure action may be had to meet any emergency. Two Deane Steam Duplex Pumps having a 6 inch suction and a 5 inch discharge supply the reservoir. The valves used were supplied by Messrs. Crane Co. of Chicago, Illinois.

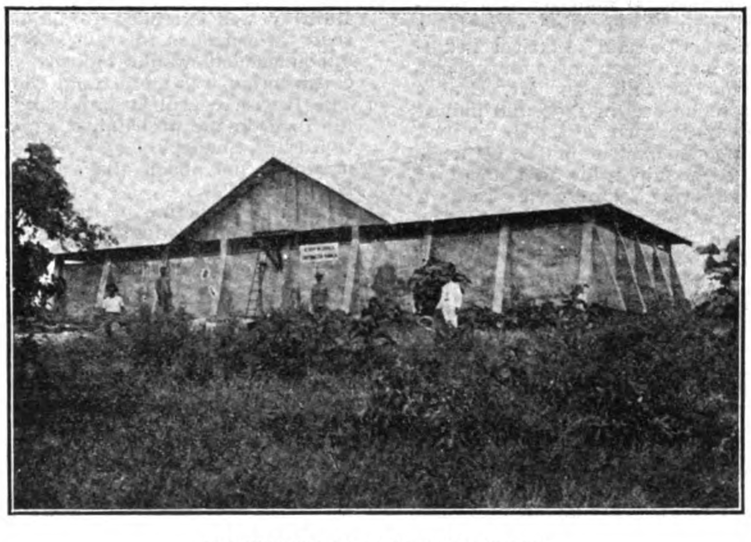
Parang-Parang Water and Sewer systems.—The water and sewer systems for the military post at Parang-Parang has a service attached for the town as well. Vitrified sewer pipe was used throughout in the installation. The piping is 12 inches and 9 inches in diameter and about 10,000 lineal feet were used. It was supplied from Australia. The discharge is into the bay of Parang through 12 inches cast iron universal pipe.

The water system is supplied from a river flowing into Pollok harbor near the town by means of a pumping station. Two duplex Deane steam pumps are utilized in pumping the water to an elevation of 275 feet into a wrought iron tank placed on a tower 100 feet in heigth. This elevation was necessary in order to give pressure to supply the hospital and other buildings which are situated at a higher altitude than the base of the tank tower. This tank holds 100,000 gallons and was shipped knocked down from the Chicago Bridge & Iron Works. Cast iron pipes were installed to carry the water throughout the system. The distance from the tank to the harbor is about 7,000 feet which with an elevation of 275 feet would give pressure of about 130 pounds at the wharf. This pressure is reduced somewhat by a small reservoir half way down the hill and the water in this reservoir is controlled by one of Crane Company's Ball Cocks built for 100 pounds pressure. The system is so arranged that at any one of the thirty fire hydrants there is a pressure sufficiently strong to throw water over any building in the post.

Steam is supplied by two 25 H. P. Atlas boilers. The suction of the Deane Duplex Pumps is six inch and the discharge five inches and are so arranged that either or both pumps may be used, giving auxiliary service.

The cost of these plants was about ₱120,000 and they were begun and completed simultaneously with the Jolo systems.

The town of Parang is supplied from this water service with a four inch main and five two inch fire plugs.



RESERVOIR AT JOLO COMPLETED

NEW SILK WORM

Mr. Iijima, Consul at Calcutta, reports that a German in Uganda, East Africa, has recently discovered a worm which yields silk It appears that these worms gather themselves into one mass, and make a nest, which they attach to the branches of trees of certain descriptions. The discoverer has left Uganda to study the relation and influence which this discovery may have on the commercial world. The discovery is reported to be attracting no small amount of interest among merchants of various countries.

RICHARD T. LAFFIN, FORMER GENERAL MANAGER AND VICE-PRESIDENT OF MANILA E. R. R. & L. CO.

Mr. Richard T. Laffin, formerly general manager and second vice-president of the Manila Electric Railroad & Light Co. who resigned from that position recently on account of ill-health and whose departure to the homeland will be sincerely regretted by the business community of Manila, is one of the most experienced of contemporary electric railroad managers. It might be said that he grew up under the influence of the expansion and general utility of electricity as a motive power in solving transportation problems. He studied all the practical phases of the business and is familiar with the duties and responsibilities of each and every official and employee of an electric railway system. It is largely due to this knowledge that he has met with the success that has marked his administration in whatever capacity he served in his interesting career.

Mr. Laffin was born in the state of Maine, May 27, 1862. He was educated in the public schools of his native state and at the age of 18, he moved to Boston where he first became associated with city railway work. He worked his way up the ladder from motor man through the different grades until he was made superintendent of one of the main lines of the consolidated system. It was not long before his splendid executive ability was recognized and in 1901 he accepted the position of general manager of the Worcester (Mass.) Consolidated Street Railroad Co. This position was an important one as the company controlled and operated 160 miles of lines and served seventeen cities. He remained with this company until 1904 when he received an attractive offer to accept the position of general manager and vice-president of the proposed Manila Electric. He arrived in Manila in January 1904, and directed the destinies of the system until his resignation, September 1.

Mr. Laffin is interested in the development of the mineral wealth of the Philippines and is president of the Bua Mining Co. of Benguet. During his service as general manager of the railroad he won the regard and confidence of the public and ever expressed the greatest confidence in the future of the archipelago. He leaves for the United States in January to recuperate his health.

Charles B. Graves, assistant manager of the company who succeeded Mr. Laffin as second vice-president and general manager is a practical electrical engineer of wide experience in railroad construction and electrical installation as well as management of power plants and the direction of railroads. Mr. Graves was born in Massachusetts in 1870 and moved west to Oregon at an early age. He worked in the engineering department of the O. R. & N. Co. where he acquired his first taste of mechanical engineering. Later he took a course in mechanical and electric engineering at Tuft's College and graduated in 1897. From that time until he accepted the position of superintendent of light and power with the Manila company he was engaged in construction and operation of railway systems throughout the United States, Brazil and Canada. From 1899 until his contract with the present company in 1905 he served in the capacity of electrical engineer, assistant manager and construction engineer.

During the absence of Manager Laffin in the United States Mr. Graves was in charge of the system as acting manager and about this time he was promoted to the position of assistant manager from that position to general manager and second vice-president of the company. Mr. Graves' foreign experience makes him familiar with every feature of railroad management and indicates a continuation of the successful administration that has characterized the direction of the company since its organization.

PHILIPPINE RAILWAY CONSTRUCTION

With the improvement of weather conditions, construction on all the different lines in the archipelago during the month received added impetus. The Manila Railway Co., the concessionaires for the Luzon lines, have made marked progress during the month and there is every indication that the company will fulfill the terms of the concessions long before the date required by contract.

The Dagupan-San Fernando de Union line has been completed and steel laid to San Fabian, a distance of twelve and one-half kilometers, most of which is ballasted.

The line from San Fabian to Camp One has been graded for a distance of 12 kilometers. and steel has been laid for ten kilometers. On his trip to Baguio, Secretary Taft proceeded to the end of the steel by special train and from there by automobile to Camp One.

The Florida Blanca line has been graded its entire length, a distance of 25 kilometers, and the steel has been laid for 12 kilometers.

On the Batangas line three kilometers of track have been laid and 50 kilometers graded out of the total of 108 kilometers that constitute this line.

Three kilometers of track have been laid and the total length of the Manila belt line from Santa Mesa to Paco has been graded, a distance of 9.1 kilometers.

On the Antipolo line two additional kilometers of track have been laid between Taytay and the terminus.

The Cavite short line, which will be 32 kilometers in all when completed, has been graded for 25 kilometers and the steel has been laid for about five miles.

The Philippine Railway Co. is meeting with the greatest degree of success in the construction of their lines in Cebu and Panay and the traffic on the 25 mile section since the mixed construction passenger and freight train was made a daily adjunct to the road, has been most encouraging. There are about 60 miles of grading completed in Cebu and 27 miles of track laid. The laying of track will continue at the rate of about five miles a month.

In Panay steel has been laid for five miles and the grading covers a distance of 25 miles.

Work has been progressing favorably on buildings and masonry and the foundations for the bridges and culverts will be completed in time for the steel as it arrives. Some of the latter is expected at the end of this month. In Iloilo concrete piles are being used in preparing the foundations for the buildings. Seven depots are under way in Cebu.

CHINKIANG SECTION SHANGHAI-NANKING RAILROAD OPEN

The construction of the Shanghai-Nanking Railway was extended to Chinkiang and the road thrown open to traffic October 15. This announcement would indicate that the road construction was more rapid than anticipated. The British consul at Chinkiang in his report for 1906 on the probability of railway connection with Shanghai, gave as his opinion that it would not reach that point before 1908. He said:

"The construction of the Shanghai-Nanking Railway is proceeding but will not, for at least two years, be sufficiently completed to show what effect if any the railway will have on the trade of Chinkiang. Opinions are divided but as the railway does not open up any new route, and Chinkiang is well served with waterways, the probability is that the conditions of Chinkiang trade will not be particularly affected."

In the construction of the Chenkiang section there were over a thousand feet of tunneling and many difficult cuts which presented many unexpected difficulties.

It will be remembered that the Shanghai-Soochow-Wusieh sections of the Shanghai-Nanking Railway was opened to traffic in July of last year and the work has progressed over section by section ever since.

This railway is being constructed by the British and Chinese Corporation under a concession from the Peking government. The firm of Messrs. Jardine, Matheson & Co. are in charge of the construction and operation and the Hongkong and Shanghai Banking Corporation is financiering the project.

When completed, this line will tap a fertile area of 45,000 square miles with a population of about 35,000,000.

SAIGON RICE MOVEMENTS

The total export of rice from Saigon from January 1st to September 20th of this year amounted to 14,372,100 piculs of which 1,049,100 piculs were shipped to the Philippines. The best customer was Hongkong to the amount of over six and one-half million piculs.

CEMENT WORKS AT CANTON

The Canton correspondent of the *China Mail* under date of September 13 says:

"The contracts for the long talked of Cement Works, which the Chinese Government propose to erect at Soo Fong Wei on the Island of Honam just above the salt flats, have been signed, and the work of construction was commenced today by the driving of the first pile.

The sum of about $300,000 is to be expended for buildings and machinery. The iron and steel materials are to be furnished by Messrs. Howarth Erskine and Co. who are general contractors for the buildings. The machinery is to be supplied by Messrs. Carlowitz and Co. The architects and engineers in charge of the construction are Messrs. Purnell and Paget of Shameen, Canton.

The dimensions of the main buildings are as follows: Cement Mill, 42 feet long, by 74 feet wide, and 26 feet high; Clay Drying Plant, 88 feet long, 52 feet wide; Barrel Making Plant, 156 feet long, by 56 feet wide; Drying Plant, 132 feet long, 65 feet wide; Engine House 152 feet by 71 feet wide; Kiln Plant, 163 feet long by 45 feet wide; Boiler House 102 feet long by 71 feet wide; Packing and Storage Room 132 feet long by 105 feet wide; Preliminary Drying Chamber 152 feet long by 83 feet wide; Raw Material Mill and Brick Mash 152 feet long by 83 feet wide.

There are to be two lifts, each 8 feet 9 inches by 19 feet 6 inches, having a height of 64 feet. The foundations are to be completed early in January 1908. The entire plant is supposed to be in working order by the end of 1908.

The capacity is to be 500 barrels a day. The total area of the plant is about 60 acres. The site now presents a busy scene. Temporary offices for the Chinese officials are being erected, and numerous matsheds are already up. Quarters for the cement company's staff are to be put up at once, and quarters for the employees will also be erected adjoining the plant. A number of competent Chinese engineers have been engaged by the Government.

YLANG-YLANG IN LABUAN

Visitors to the recent Agri-Horticultural Show in Kuala Kangsar were much attracted to the government exhibits from Labuan and Brunei. Amongst these, not for competition, were included samples of Essential Oils distilled on Pulo Daat Estate, Labuan, consisting of several varieties of oils of the Citrus family, and a novelty in the shape of a fine sample of Attar of Ylang-Ylang (Ol. mona odorata filipinensis), which is a speciality of this estate, and, as far as we can ascertain, the first instance of its production in a British Colony

This oil was introduced originally into Europe from Manila, in the early sixties of last century but it was not until 1878, when it was first exhibited at Paris, that the oil became widely known.

The owner of Pulo Daat, who is a practical and observant horticulturist and was many years resident in the Philippines, introduced the tree to the Colony, where, during the last six years, he has gradually laid out a large plantation now just commencing to flower. The oil sent to Kuala Kangsar was part of the first distilled. Only small quantities of oil will be made during the present year; next year, distillation will be carried on extensively, and the oil will be placed on the market.

It is understood that it is the intention to form Pulo Daat into a Company and plant the reserve land with Para rubber, of which a few acres have been already planted, some trees being six years old and all are thriving well. Besides Ylang-Ylang, there are some 20,000 cocoanut trees on the island, and, rather strange for these parts, a flock of sheep thoroughly acclimatised and breeding prolifically.—*Straits Budget.*

FAR EASTERN COMPANY REPORTS

HOKKAIDO COLONIAL BANK

At a general meeting of the shareholders of this institution the report adopted showed a net profit of 243,000 out of which 110,400 was paid in dividends.

BANK OF FORMOSA

At a general meeting of the shareholders of the Bank of Formosa held in Tokio, September 2nd, a dividend of 10% was declared for the year, 105,000 yen was placed in the reserve funds and 98,052 yen carried forward.

BANK OF JAPAN

At the fifteenth annual meeting of the shareholders of the Bank of Japan a gross profit of 3,060,467 yen was announced for the year. Out of this a dividend of 12% was paid and 1,198,467 yen was carried forward.

CHARTERED BANK OF INDIA, AUSTRALIA & CHINA

Advices from London announce that an interim dividend of 13% has been declared for the half year ending June 30, 1907, free of income tax, by the Chartered Bank of India, Australia and China.

YOKOHAMA SPECIE BANK

This institution has declared a dividend of 12 % per annum, transferred 500,000 yen to the reserve fund and carried forward 1,955,000 yen.

STEAM LAUNDRY CO. (LTD.)

For the year ending May 30, 1907, a dividend of 40 cents a share was paid September 19. This is equal to 6.75% at present quotation.

THE FORMOSA SUGAR MANUFACTURING CO.

At the recent semi-annual meeting of this company the report submitted showed a net profit for the half year of 266,950 yen out of which a half yearly dividend of 10 % was directed paid.

THE DOUGLAS STEAMSHIP CO.

At a meeting of the shareholders of this company, held on September 28, a dividend of 8% was declared which absorbed $80,000. In addition to this there was a balance of $37,488.15 to the credit of profit and loss for the year ending June 30, 1907. This amount was written off from the values of the company's properties at the end of the fiscal year.

TOKIO BAY STEAMSHIP CO.

This company directed that a dividend of 11% for the year be distributed among the shareholders. This amount was represented by yen 31 000.

URAGA DOCK CO.

The report submitted at the general meeting held at the Bankers' club recently showed a loss of 6,000 yen. An extraordinary meeting has been called

JAPAN MARINE INSURANCE CO.

The net profit of the Japan Marine Insurance Company for one year just closed has amounted to -Y-329,000, including a surplus brought over. On this sum -Y-17,000 has been placed to the legal reserve, -Y-20,000 to the special reserve, -Y-25,000 for bonuses of officials, -Y-75,000 for a dividend at the rate of 10 per cent., -Y-150,000 for an extra dividend at the rate of 20 per cent., a surplus of -Y-41,000 being carried forward. The Board of Directors has decided to call up -Y-2.50 on each share, keeping back this sum from the extra dividend. When this has been done, the total amount of the paid-up capital of the company will be increased from -Y-750,000 to -Y-900.000.

TOYO KISEN KAISHA

At a meeting of the shareholders of this company on Sept. 20, a dividend of 12% was declared.

HONGKONG HOTEL CO. (LTD.)

The Hongkong Hotel Co. has declared a dividend of $4 a share for the half-year ending June 30, 1907. This is equal to ten per centum per annum on the market quotation for this stock.

HONGKONG COTTON SPINNING, WEAVING AND DYEING CO. (LTD.)

This company has declared a dividend of 50 cents for year ending July 31st, 1907. This equal to a dividend of 4.75%.

MAATSCHAPPIJ TOT MIJN-, BOSCH-EN LANDBOUWEXPLOITATIE IN LANGKAT

This company has declared a third interim of Tls. 7.50 making Tls. 22.50 for account 1907.

THE PAKNAM RAILWAY CO.

At a meeting of the directors of the company at Bangkok a half-yearly dividend of 6% was declared with a bonus of 2%. The traffic receipts for the period were the highest in the history of the company.

SIAM ELECTRICITY CO.

A half yearly dividend of 6% was declared by the directors of the company at the recent half-yearly meeting. No bonus was announced.

THE SIONE RUBBER CO.

The third annual meeting of the directors of the Sione Rubber Co. was held recently in Singapore and a dividend of seven and one-half per cent directed paid. The sum of $1,500 was set aside to renumerate the directors.

TRONOH MINES (LTD.)

The Tronoh Mines recently declared an interim dividend of one shilling. This makes in all six shillings for 1907 to date.

BLACK WATER ESTATE RUBBER CO.

The directors of this company have declared an interim dividend of 7%. The report for the half-year ending June 30 showed a netprofit of R25,106.33 or almost 13% on the paid up capital.

THE PUSING LAMA TIN MINES

A dividend of two shillings has been declared by this company made payable in London Sept. 3.

NORTH BORNEO TRADING COMPANY LIMITED

Mr. A. Scrutton, presiding at the meeting of the North Borneo Trading Company on 23rd inst., said the directors regretted to present so unsatisfactory a report, the gross trading profit having been only £1,162, as compared with £3,297 last year. The condition of things in China offered a full explanation of the position. Mr. Bennett (the managing director) said the reduced profit was due to the falling off in the China shipments. The Hong Kong timber market had also been depressed, their shipments to that port showing a drop of 46 per cent. Their Sekong rubber estate, which had been very favorably reported upon, would be sold, and the money devoted to developing other estates. The report was unanimously adopted.

SHANGHAI-SUMATRA TOBACCO CO. (LTD.)

An interim dividend of Tls. 5 equal to 25% was paid by this company on Sept. 10th, 1907.

HONGKONG APPROPRIATION FOR 1908

The public service appropriation for Hongkong for the fiscal year 1908 amounts to $4,992,993 and is itemized as follows:

Governor	$ 77,124
Colonial Secretary's Department and Legislature	71,621
Registrar General's Department	38,691
Audit Department	19,531
Treasury	57,654
Post Office	410,514
Harbor Master's Department	158,655
Harbor Office—Special Expenditure	1,000
Observatory	18,662
Miscellaneous Services	204,655
Judicial and Legal Departments	193,295
Police and Prison Departments	699,138
Fire Brigade—Special Expenditure	51,000
Medical Departments	237,000
Sanitary Department	446,393
Botanical and Forestry Department	48,773
Education	200,026
Military Expenditure.— Volunteers	45,916
Public Works.— Public Works Department	268,126
Public Works, Recurrent	437,500
Public Works, Extraordinary	822,900
Charge on account of Public Debt	275,013
Pensions	196,000
Charitable Services	13,765
Total	$4,992,953

KOOTENAY STEEL WORKS

A gigantic organization has been formed by Canadian capitalists for the purpose of establishing a large blast furnace at Kootenay Landing, British Columbia, for the purpose of supplying the Orient as well as the western slope with steel rails.

The ownres of the property are Sir Thomas Shaughnessy, president of the Canadian Pacific Railway; Charles Hosmer, of Montreal, and other Eastern capitalists. C. P. Hill, manager of the Hillcrest Coal Mines of Alberta, made this announcement. He said: "Within two years we will be supplying steel rails to all points on the continent west of the Rockies, as well as to the Orient. I have been authorized by members of the company to lay out a comprehensive plan of development involving an expenditure during the next year and a half of $2,500,000. The plans are being drawn now by a Pittsburg engineer. The iron veins on the property have been traced a distance of seven miles. They are ten in number and the widest has a thickness of twenty-three feet. We have plenty of flumes in proximity to the iron deposits. We will develop a large water power from Elk and Goat rivers. The ore will be handled to the Canadian Pacific Railway line at the rate of 3,000 tons per day."

AMUR RAILWAY SURVEYS

The preliminary surveys for the Amur Railway have now been completed. Three alternative routes, says a Moscow correspondent, have been considered, but there are overhelming advantages in favor of the one running along the right bank of the Zea, a tributary of the Amur, which it joins at Blagoveschensk. The ordinary post post road runs along the left or north bank of the Amur, and the Zea runs parallel to the Amur for about 200 miles, at a distance from it of 100 miles, away to the north. The choice of this route provides Russia with what is practically a second frontier. By carrying the line of cross country railway 100 miles back from the Amur, the chances of successful attack upon it in case of war are removed. At the same time, the line will open up the richest grain growing land east of Lake Baikal. The land along the Zea valley already supplies the Amur region with a large part of its corn, and a railway through it will, it is calculated, open up a grain growing district about the size of England, between the Zea and Selena rivers.

Mines, Mining and Minerals in the Philippine Islands

(Edited by the Bureau of Science, Manila).

A GEOLOGICAL RECONNOISSANCE OF THE BATANES ISLANDS

The Batanes Islands lie between latitude 20° 16′ N. and 21° 05′ N. (or 21° 13′ N. if "existence doubtful" Bashi Rocks are included) or approximately the latitude of the southern half of the Hawaiian Islands, and between longitude 121° 49′ E. and 122° 02′ E. Y'Ami, the most northern island of the group, is about 270 kilometers from the nearest point of Luzon, Cabo Engaño, 107 kilometers from the Japanese island of Little Botel Tobago and 160 kilometers from the southern point of Formosa. On a very clear day the Formosan mountains can be seen from the summit of Mt. Iraya in Batan Island. The Bashi Channel with a minimum depth of 1009 fathoms separates the islands from Formosa and Botel Tobago on the north, while to the south the Balingtang Channel with a sounding of 95 fathoms (without bottom) lies between these islands and the Babuyanes group. The Balingtang Islands, lone rocks rising perpendicularly from the sea, lie in the center of the Balingtang Channel and form a connecting link between the Batanes and Babuyanes groups.

The islands forming the group are Y'Ami, Maysanga, Mabudis, Siayan, Isbayat, Inem, Batan, Sabtan, Ibujos and Desquey. The first four of these are simply barren rocks of volcanic material surrounded by coral reefs, and locally known as the Siayanes meaning, as I was told, "good fishing grounds." The natives, however, seldom venture among these islands, as, north of Isbayat, there is a strong northerly current which has often carried their boats to the Japanese island of Botel Tobago, and they have many stories of fights with the savages of that island.

The only inhabited islands are Isbayat, Batan, Sabtan, and Ibujos. Isbayat, the largest and most fertile of the group, is entirely cliff-bound. There are only two places at which landings are possible, one by means of steps cut down through the rock and the other by ladders. The land slopes inward from the cliffs and the villages are situated in small "sinks." The island has a bad reputation for fever, and the natives of the other islands will not go there. Batan is the most thickly populated. Santo Domingo de Basco is the largest town, having a population of something over two thousand and a good harbor. Overlooking the town is the beautiful mountain of Iraya (height 3806 feet), an extinct volcano. To the south and west of Iraya is a fertile plain formed by wash from the mountain. The southern and central part of the island is rugged and mountainous. Except on the slopes of Mt. Iraya and in the central part, the island is not wooded, but, where not under cultivation, is covered by short grass which makes excellent pasture land. Sabtan, southwest of Batan, is more rugged and contains much less arable land. The land rises rather steeply from the eastern shore to a plateau with an elevation of from 1000 to 1200 feet, which breaks off sharply in a line of cliffs on the west. The principal town of Sabtan is San Vicente on the east coast where steamers can anchor when southwest winds make Santo Domingo de Basco unsafe. Because of the numbers of destructive baguios which afflict the islands, all the houses are built of stone, which adds greatly to the picturesqueness of the country. Ibujos is a small coral island, entirely treeless, cliffbound except on the western side where a landing can generally be made across the coral reef. Desquez is similar to Ibujos but entirely cliffbound. Inem (wrongly called Diojo on the charts) is a single peak rising to a height of over 1800 feet and undoubtedly of volcanic origin.

The Batanes people form a distinct race speaking their own language, which is entirely different from the Ilocano dialect. They are kind, intelligent, enterprising, and extremely industrious, having a reputation, throughout northern Luzon, of being excellent workers. The daily wage paid in the Batanes is about ₱0.25.

General Geology.—A volcanic agglomerate, a rock formed of a heterogeneous mixture of angular pebbles and boulders of different lavas, forms the basal rock of the islands. It occurs in the islands of Sabtan and Batan, in the former as a high plateau with an elevation of from 1000 to 1200 feet and in the latter as a series of irregular ridges reaching a maximum elevation of 1500′. This agglomerate is probably of Miocene or earlier age and is cut by dikes of basalt and andesite which may have been feeders to old volcanoes. Upon this basal formation rest various limestone terraces showing recent uplift, and geologically recent lavas from the extinct volcano of Iraya.

The three western islands, Ibujos, Desquez, and Isbayat are composed entirely of limestone and seem to be separated from the others by a fault. This fault line probably extends through the Babuyanes as well, separating the limestone islands of Fuga and Calayan from the volcanic islands of Babuyan Claro and Camiguin. Inem and the Siayanes islands seem to be remnants of a chain of volcanoes which extends along the 122nd meridian, through the Batanes to Cagua volcano in north-eastern Luzon.

Economic Geology.—The only good harbor in the Batanes is Santo Domingo de Basco in the northern part of Batan Island, and this is entirely exposed to winds from the southwest so that during the prevalence of these winds ships must lie off San Vicente de Sabtan. With the exception of Santo Domingo de Basco all the towns of the islands are situated back of coral reefs through which narrow and often very crooked passages allow access for small boats.

Dampier, in describing his discovery of the Batanes Islands (named by him Bashi Islands) in 1671, says: "Both sexes wear earrings of a yellow metal (they dig out of their mountains) having the weight and colour of true gold but something paler; whether it were such in effect or no, I am not able to say, for it looks of fine colour at first but afterwards fades, which makes us suspect it, therefore our people did not purchase much of it. We observed the natives to besmear it with red earth, and then, putting it into a quick fire till it was red hot, brought it to its former colour again." One of the Dominician Friars told me that formerly the ornaments in the churches were of Batanes gold, but that these had all been carried away in the looting of the churches by the Katipunan army. Many of the women wore heavy gold earrings and bracelets, often of excellent workmanship. These, I was told, were all of Batanes gold. The gold was of a light greenish-yellow color, answering perfectly to Dampier's description. It is also an interesting fact that the natives use the same method of baking it in red clay to put the desired tarnish on it. All of these ornaments were family heirlooms and all had been handed down for at least three generations. From what information I could gather it would seem that up to about forty years ago the natives washed gold from the streams draining the region of volcanic agglomerate on Batan and Sabtan Islands, but that the yield became so small that work was abandoned and panning is now a lost art. The last stream to be worked was one on the island of Sabtan between the barrios of Santa Rosa and Santo Tomás. It is of course possible that with more modern methods these streams might be re-worked with some hope of profis-but it seems rather doubtful and the inaccest, ibility of the islands would hinder work on a large scale.

Two veins were sampled, one, near San Carlos de Magatao, showing a series of small veins cutting an andesite dike with limonite at their outcrop, and the other about a mile north of Itbod being a fault gouge of considerable thickness with pyritized andesite on either side. The assays, however, gave practically no values.

As far as I could find out no lode mining was ever done by the natives or Spaniards.

The later lava flows from Mt. Iraya are often copper stained, and in one place I found a small vein of malachite. It was not over a couple of inches wide, however, and in a rather inaccessible place.

On the beaches along the north coast of Batan there is a considerable amount of pumice. It might be profitable to collect and ship this.

HENRY S. FERGUSON.

THE SULPHUR DEPOSITS OE CAMIGUIN ISLAND

Camiguin Island is the south eastern island of the Babuyanes group. It forms one of the chain of volcanic islands which follow the 122nd meridian, the position of Camiguin volcano being Lat. 18° 55″ N., Long. 121 ° 52″ E., and lies about 45 kilometers north-west from Cabo Engaño and about 60 kilometers north-northeast from Aparri. No steamers call at Camiguin and the only communication is by native boat from Aparri. During the months of September, October, and November no boats whatever visit the island.

The entire population numbers about eighty, of whom thirty are able-bodied men. The natives are lazy and shiftless and live on the verge of starvation in spite of the rich soil and excellent forests. During most of my stay there I found it impossible to hire laborers at any price. Mr. Meyler, who has lived there for several years, tells me that it is practically impossible to get laborers on the island or to induce laborers from the other islands or Luzon to come to Camiguin, even at double and treble the ordinary rates.

The island is about 20 kilometers in length in a northeasterly direction and has a maximum width of 12 kilometers. It is heavily wooded and there are no trails except along the beach for short distances from the barrio, hence the interior is practically inaccessible. The interior is mountainous, the highest peak in the northern part having an altitude of 2747 feet. The northern mountains are sharp, and form a range running parallel to the long axis of the island. As far as I could see none of these mountains seem to be recent volcanoes, although it is perfectly possible that they may be the erosion remnants of former ones. Camiguin volcano stands alone in the southern part of the island. No eruptions have ever been recorded from this mountain, it is everywhere heavily wooded and what outcrops of lava were found were considerably decomposed. The form of the mountain is not so symmetrical as Mt. Iraya in the Batanes Islands, nor is the crater so well defined, but like Iraya there are the ruins of an old cone which has been blown away and a new cone built up inside the old one. To the north of the mountain is a plain formed of lapilli and bits of pumice.

Camiguin has a bad reputation throughout the other islands and northern Luzon because of the prevalence of fever. The natives all live on small swampy plains which have been built up by the streams and which are partly surrounded by evil-smelling marshes, so that it is not surprising that malaria and dysentery are prevalent.

The coast for the most part is irregular and uninviting and surrounded by a wide coral reef. Porto San Pio V., however, is an excellent natural harbor, far better than Aparri or Santo Domingo.

Geologically, the island consists entirely of two kinds of lavas, andesite and basalt, the former predominating, with subordinate amounts of volcanic agglomerate. A peculiar feature is the absolute lack of limestone terraces or raised beaches, showing that Camiguin has not joined in the recent general uplift of the Philippines.

On the southern shore are two springs of scalding water analyses of which, made by Mr. V. L. Gana of the Bureau of Science, gave the following results:

No. 1 Spring on south coast	*Parts per million*	*Per cent of total solids*
Total solids	5720.7	100
Si O_2	173.8	03.04
Al_2O_3,Fe_2O_3(mostly Fe_2O_3)	737.2	12.89
Mn_3O_4	87.8	01.53
Ca O	352.0	06.15
Mg O	184.0	03.22
S O_3	1207.7	21.11
K_2O	188.2	03.21
Na_2O	1198.8	20.96
Undetermined, mostly organic matter, chlorine and C O_2	1598.8	27.81
	5720.7	99.92

No. 2 Spring on south west coast.	*Parts per million*	*Per cent of total solids*
Total solids.	20092.6	100
Si O_2	178.6	00.89
Al_2 O_3 Fe_2 O_3	12.2	00.06
Mn_3 O_4	------	------
Ca O	575.4	02.86
Mg O	696.4	03.47
S O_3	700.4	03.49
K_2O	836.9	04.16
Na_2O	7970.6	39.67
Undeterminied, mineral, mostly organic matter, chlorine and C O_2	9122.1	45.40
	20092.6	100.00

Besides these there are numerous other sulphur and iron springs in western and northern parts of the island which are slightly warm or cold.

Economic Geology.—The principal feature of the economic geology of Camiguin is its solfatara on the west flank of the mountain about a mile from the sea. This is between a quarter and a half mile in length and several hundred feet wide, following a dry stream bed. The sulphur is very fine and while of course the depth of the deposit is unknown there seems to be a considerable amount of it. The stream vents are not very numerous and there is no troublesome flow of hot water. A solfatara which had been worked commercially in Iceland had a smaller surface area of sulphur, less favorable topography, no local fuel supply; a stream of scalding water had to be diverted before operations could be begun, work could only be carried on during a part of the year and the sulphur, not as pure as the Camiguin sulphur, had to be carried by ponies a three days journey over rough mountain trails to the point of shipment and all supplies carried in the same way. It was this last item which caused the abandonment of the Icelandic sulphur. If test pits should show the Camiguin deposit large enough to warrant development, there is abundant wood-fuel at hand and the sulphur could be purified before shipment. It would only be necessary to pack the sulphur about a mile to the beach where it could be sent by native boat to Aparri and there transhipped (or purified there, as there is an undeveloped coal deposit not far up the Cagayan river) or else it could be carried by small boats to Porto San Pio V where steamers might call. The chief problem would be labor. This would be the greatest difficulty as it is doubtful if the natives of northern Luzon or the Batanes could be induced to work on Camiguin Island. The isolated situation and the long stormy season are also drawbacks.

An analysis of an average sample of this sulphur for percentage of sulphur and the two impurities which cannot be freed, arsenic and selenium, made by Mr. W. C. Reibling of this bureau, gave the following result:

Sulphur	81.6%
Arsenic	Trace only.
Selenium	None.

I am informed that on the east flank of the mountain there is another even larger solfatara, but I was not able to visit it.

The sulphur of Camiguin deserves investigation. Test pits should be sunk to bed rock to ascertain the depth of the deposit in the known solfataras and the region around the volcano should be thoroughly explored in the hope of discovering new deposits. Native information cannot be depended upon as the natives have a superstitious dread of the mountain and it is only with great difficulty that they can be induced to go there.

Besides the sulphur there is a cave on the south coast where there is a coating of a mineral which analysis show to be a mixture of aluminum, magnesium and sodium sulphates apparently corresponding to the rare mineral *stuvenite* as given in Dana's system. No great amount is present and its only value would be as a mineralogical curiosity. A small amount of impure gypsum is associated with it.

On the eastern coast of the island there is a point where the natives obtain excellent whetstone. I was unable to visit the deposit, which was described to me as "a whole mountain of the stone." No microscopic examination or analysis has yet been made, but the stone seems to be in the nature of a siliceous deposit, probably from spring.

HENRY S. FERGUSON.

Dr. J. R. McDill, vice-president of the Lepanto Mining Co. arrived in Manila from the United States with Secretary Taft and party.

Leonard Lehlbach, mining engineer and director of the Lepanto Mining Co., arrived in Manila on the 14th of the month after an extended trip to the United States on business for the company.

A. Heise, president of the Eastern Mining Co. of Masbate returned to the Philippines early in the month after a successful trip to the United States in the interests of his company.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

		U. S. Currency.
ABRASIVES.—		
Bort, good drill quality	carat	$ 85 00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2.00
ACIDS —		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18.00
Aluminum, 99%	lb	.36-.39
Antimony, needle	"	10-11
Arsenic, white	"	.07½-07¾
ASBESTOS.—		
No. 1, crude	sh. ton	283.00
Fiber No. 2, paper stock	"	17.20
ASPHALTUM.—		
Trinidad	ton	30 00-32.50
California	"	22.50-30.00
Bleaching powder, 35%	100 lb	1.25-1.40
Blue Vitriol	"	7.25
Bone Ash	lb	.02¾-.04
Borax	"	.07½-.08
*Caps detonating	M	7 50
CEMENT.—		
Portland, American	500 lbs. bbl	1.55-1.60
Foreign	" "	2.25-2.90
Rosendale	300 " "	.85
*Green Island	375 lb. bbl	2.65
*Alsen		2.75
*Dromedary		2.50
*Rizal		2.50
*Independencia		2.50
CLAY, CHINA.—		
American common	lg. ton	8.50-9.00
Foreign	"	11.50-17.50
COALS.—		
Japanese		5.75
Australian		6 00
Copper	lb	.215-22
*Dynamite 40%	"	.20
Feldspar ground best	sh. ton	14 00
Fire brick American	M	30.00-40.00
Imported	"	30.00-45.00
Fire clay, St. Louis Mill	ton	2.50
*Fuse-Blasting	1,000 ft	7.50
Graphite-American ore, common	lb	.01.10
Artificial	lb	.06
Guano	sh. ton	
Gypsum-Fertilizer	sh ton	7 00
Powdered	sh. ton	10 00
Lead	lb	.05 05½
Magnesite-Greece, crude, 95%	lg. ton	7.00-8 00
Bricks, domes	per M	160-200
Manganese, pure, 98-99%	lb	.75
Ore, 80-85%	sh. ton	35 00-60 00
Mercury, export flask	75 lbs	41.00 42.00
PAINTS AND COLORS.—		
Litharge American P'w'd	lb	.07½-.07¾
Ochre, Am. Com	sh. ton	8 50-9.00
Paris green, pure, bulk	lb	.26
Turpentine, spirits, bbl	gal	60½
White lead, Am. dry	lb	.06⅜-.07
Am. in Oil	"	.07½-.07¾
Zinc, white, Am. extra dry	"	.05⅜-.05½
Phosphates, Acid	per unit	.65-.67½
Florida hard rock	lg. ton	10.25-10 50
Land pebble 68%	"	5 75-6 00
Potassium Cyanide (98-99%	lb	18 -.19
Platinum	oz	26.00-28 50
*Powder, black blasting A	lb	.15
*Judson	"	.13½
Pyrite, Domestic Non-arsenical, lump	unit	.11-.11½
Imported non-arsenical lump	"	.13-.14
Imported, arsenical	"	.12½-13
Saltpeter crude	100 lbs	4.25-4 50
Silica, Lump quartz	lg. ton	2 50-4 00
Ground quartz, ordinary	"	13 00-15.00
Glass sand, ordinary	"	2 75
Silver	oz	.679
Sodium cyanide (100% KCN)	lb	.18-.1½
*Steel, octagon drill	lb	.14
Sulphur, Louisiana prime	lg. ton	22.12½
Roll	100 lbs	1.85-2.15
Flowers sublimed	"	2.20-2 60
Talc—Domestic	sh. ton	15 00-25 00
Italian, best	"	35.00-40.00
Tin	lb	.40½
Zinc, metallic ch. pure	"	.15
Dust	"	.05⅞-.06½

*Manila quotation.

"IDEAL" MACHINES FOR MEXICO

The success of the Ideal Concrete Block Machine, its universal adoption, and the increasing demand from every country in the civilized world, is a modern proof of the ancient saw that "it never rains but it pours."

There has recently left the factory of the Ideal Concrete Machinery Co., of South Bend, Ind., the third car-load of a four car shipment of Ideal Concrete Block Machines to Mexico. The fourth car-load is practically ready for shipment, and will go forward at an early date.

Heavy shipment of the Ideal Machines to foreign countries is becoming so frequent as to be regarded as quite an ordinary occurrence. Shipments have recently been made to Valparaiso, Chili; Panama, Central America; Khartum—Sudan, Egypt; Glasgow, Scotland; Budapest, Hungary; Bucharest, Roumania and elsewhere.

The heavy export requirement for Ideal machines, coming, as it does, to swell the monthly multiplied domestic demand, has necessitated increased factory facilities that rank the Ideal Concrete Machinery Co. among the leading manufacturing concerns of the middle West.

Recent improvements to the Ideal Machine make it universal in its adaptability and really unique among machines for cement block manufacture. An attractive and expensive catalogue has recently been issued that is a valuable guide to the home builder and the block manufacturer alike. It is sent free on application, and the information it contains makes it well worth sending for.

PINANG EXPORTING ELEPHANTS

Many elephants, says the *Pinang Gazette*, are exported from Penang to Rangoon every year. The B. I. S. N. Co.'s *Taroba* is expected to take away eight elephants early next month. This will be an unusually large number for one shipment. The animals are brought overland from Tringganu, Patani, and other Siamese Malay States on the east coast of the Malay Peninsula, to Province Wellesley. In the Siamese Malay States there has been no difficulty about stability of bridges as there are none to cross, but in Province Wellesley, the old bridge over Sungei Jarak at Padang Manorah once partially collapsed, and some difficulty arose as to who should make good the damage.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPH LINES, ETC.,

SIAM ELECTRIC COMPANIES COMBINE.—The Siam Electricity Co. has taken over the controlling interest in the Siamese Tramway Co.

OSAKA-KOBE ELECTRIC R.R.—This company has decided to add three million yen to its present capital with a view to extending its system.

PERTH CITY INSTALS ELECTRIC LIGHTS.—Perth, West Australia, has installed a complete electric light system under the direction of the city council.

TIENTSIN ELECTRIC TRAMWAY EXTENSION.—The extension into the Japanese concession at Tientsin was officially opened to traffic on September 18.

NEW JAPANESE WIRELESS.—Wireless telegraphy on a new system recently perfected at the Yokosuka naval arsenal is being tried between Yaidzu, Shizuoka, and Adzumayama, near Yokosuka.

WATER POWER ELECTRIC GENERATING PLANT AT KATSURAGAWA.—This plant of the Tokio Electric Light Co., has been partly installed and is being utilized to supply power and light to the capital.

DUTCH INDIAN WIRELESS.—The Dutch government has given sanction for the establishment of 38 wireless telegraph stations in the Dutch Indies and this work will be taken up by a private company.

ADELAIDE TRAMWAYS.—There is a row on between the ratepayers and the tramway trust over the proposed route of the new system. The trust has surveyed routes on the residential streets only against which the ratepayers protest.

GEELONG ELECTRIC TRAMWAYS.—The town council of Geelong, Victoria, has accepted the proposals of the Electric Light and Traction Co. to instal a complete electric tramway system in that city, says the Australian Hardware and Machinery.

ELECTRIC DESTRUCTOR FOR GARBAGE.—The municipality of Balmain, New South Wales, has concluded negotiations for the supply of electric light and power as well as the providing of a garbage destructor with Messrs. Kennick & Co., contractors.

PENANG'S CHEAP ELECTRIC SERVICE.—The Penang municipality has made a trade rate for the supply of electricity on a three year contract of 12 cents (Straits dollar) on a day load of five hours daily. The Singapore price is 25 cents with a 25% rebate.

WALLAROO LIGHTING SERVICE.—The Wallaroo and Moonta Mining & Smelting Co. has entered into a contract with the town council of Wallaroo, South Australia, to replace the present two wire service with a three wire service, says the *Australian Hardware & Machinery.*

STEAM TURBINE GENERATOR.—The municipal electricity bureau at Shanghai is trying out the first steam turbine for the generating of electricity. The turbine speeds 1500 revolutions a minute and develops 1,350 H. P. It was built by Messrs. Parsons & Co. of Newcastle-on-Tyne.

JAPANESE CABLE AND TELEPHONE SERVICE.—Tokio and Hokkaido will be connected by telephone within the next few years. According to the official plan, the line connecting Tokio and Sendia willl be completed this year and from Sendai to Aomori early next year. The cable between Hakodate and Aomori was completed in September.

PEKING ELECTRIC LIGHT AND RAILWAY.—The Peking Electric Co. has received a franchise from the board of Home Affairs to construct tramways in the Chinese capital. The capital of one million taels has been subscribed by Chinese. Construction will commence January 1. The doyen of the diplomatic corps has also given his consent to the installation of electric lights on Legation street.

TOKIO'S NEW ELECTRIC REGULATION.—An ordinance has been passed in Tokio providing no building may be provided with electricity from more than one power house at one time. The ordinance reads: "In the same house or building it is forbidden to be supplied with electricity from two or more different electricity factories unless special permission is granted by the prefectural governor."

RAILWAYS AND RAILWAY SUPPLIES.

HANGCHOW RAILWAY.—The Kiangkan-Hushueh Railway was formally opened to general traffic on September 22.

EAST INDIAN RAILWAY.—It is the purpose of this company to put five steam rail motors in operation in a short time.

TOKIO CENTRAL DEPOT.—The construction of the central railway station in Tokyo will be started within the present fiscal year.

AMUR RAILROAD.—The Russian government has agreed to subscribe 2,500,000 roubles towards the construction of the proposed Amur railroad.

KIRIN-CHANGCHUN RAILWAY.—The survey of the route of this proposed line was completed last month and the plans are in the hands of experts for approval.

YUNNAN RAILWAY TROUBLES.—Peking has decided that the railways in Yunnan shall be built and operated by Chinese exclusively and the French have filed a protest.

DAMAGE TO JAPAN'S RAILWAY BY FLOOD.—It is estimated that the government railways in Japan suffer to the extent in value of two million yen during the recent floods.

BURMA RAILWAY EXTENSION.—As the result of the limited appropriation for the work the construction on the Burma railway extensions has been suspended almost in its entirety.

MANCHURIAN RAILWAY AS STEVEDORE.—On October 1st new wharf regulations went into effect at Tairen which provides that all the cargo landed at that port will be handled by the South Manchurian Railway.

TOKIO RAILWAY.—Official sanction has not been secured by the Tokio Railway Co. for the carrying of freight on its lines and it has revised its proposed program so as to carry mail matter and parcels only for the present.

MANCHURIAN RAILWAYS.—A joint time table and revised tariff went into effect on the South Manchurian and the Chinese Eastern Railways on October 10. This will greatly facilitate passenger and other traffic on the two roads.

STEEL RAILS FOR VICTORIA.—The United States Steel Products Co. has secured the contract for the delivery to the Victoria government of 8485 tons of 80 and 100 pound rails at £6 17s a ton and 518 ton of fish plates at £8 18s 9d a ton.

REDEMPTION OF PEKING-HANKOW RAILWAY.—The ministry of posts and communications at Peking is busy on a scheme to redeem this road. It is understood that the money will be forthcoming from the leading officials and merchants.

NATIONALIZATION OF CHINESE RAILWAYS.—The board of communications at Peking has decided to place all the railroads in China under government control and is making enquiries in other countries as to the best methods to accomplish this end.

PAHANG RAILWAY.—The construction of the railroad from Gemas in Negri Sembilan to Kuala Semantan in Pahang, which has been authorized, will be commenced at once. It is also reported that a railway will be constructed from Kuala Gemis on the Johore border to Port Dickson.

FOUNDRY FOR CHINESE RAILWAYS.—It is reported that Viceroy Chan Chihtung is promoting the establishing of an extensive foundry and iron works at Hankow for the benefit of the Canton-Hankow Hunan and Szechun railways. The capital of the proposed company is placed at 40,000,000 taels.

MANILA RAILWAY CO.—The traffic receipts of the Manila Railway for the week ending August 24 were $26,112 (including extensions, 207 miles open), against $24,983 (main line only, 127 miles open) for the corresponding week of 1906; making an aggregate of $1,560,965, against $1,148,923 for last year.

PEKING RAILWAY SCHOOL.—The board of communications at Peking intends to establish a railway school at the Chinese capital for the purpose of training young Chinese for the various provinces. A telephone school has already been established and telegraph, shipping and post schools will soon follow.

SAKAI RAILWAY CO.—Official charter was given, under date of September 16, to the Sakai Railway Company, with 1,800,000 yen capital, to construct a railway between Yokohama and Dzushi, a distance of 3 miles 78 chains. This Company is promoted by Mr. M. Suyenobu and eight other persons.

INDIAN RAILWAYS.—A new railway 72.34 miles in length between Rangya on the Bengal state railway and Tezpur in Eastern Bengal has been surveyed. The gauge will be 3 ft. 3⅜ in. The Sambulpur Khurda Railway in Bengal when completed to be 190 miles in length has been surveyed. The guage proposed is 5ft. 6 in.

TIENTSIN-CHINKIANG RAILWAY.—The British Syndicate which has agreed to lend the funds for the construction of the proposed Tientsin Chinkiang Railway has notified the Chinese authorities that the Railway Company will be expected to make an annual repayment of four million taels on account of interest and instalment on the loan.

ELECTRIC RATE WAR AT TOKIO.—There is keen competition on electric lighting rates between the Tokio Electric Light Co. and the Tokio Railway Co. The former has reduced its rates from 30 sen a kilw. to 20 sen with radical discounts on large orders and announces that it is willing to give a whole night service for 1.40 yen as a substitute service for a half-night at 1.20 yen.

CHINESE RAILWAY CONCESSION.—A syndicate of the gentry of the Provinces of Shensi and Kansuh has asked the Yu-chuen-pu (Board of Communication) to grant them a railway concession from Taiyuan-fu in Shansi via Pingyang-fu to Hsian-fu in Shensi and then to Lanchou-fu in Kansuh. It is reported that this has been caused by steps, which Viceroy Shen Yun of Shen-Kan is said to have taken to secure a similar concession for a Belgian Syndicate.—*P. &. T. Times.*

RUSSIAN RAILWAYS.—The Russian Minister of Railways has submitted to the Council of Ministers a scheme or improvements in the state railways which it is proposed to carry out from 1908 to 1912. The total estimated expense is $458,000,000, divided among fine annual budgets. The principal items are doubling tracks, $36,000,000; bridges and embankments, $30,000,000; stations, $59,500,000; workshops, $52,000,000; retailing, $30,000,000, and rolling stock, $151,000,000.

KOREAN RAILWAYS.—The Railway Bureau of the Korean Residency-General on Sept. 20, carried through transportation of passengers and freight to and from Antung, Manchuria. Through tickets are issued between Antung and any point on the Korean railway system, and a ferry boat plies between Antung and New Wiju, connecting with every train leaving or arriving at the latter place. Goods are passed through the Korean Customs at New Wiju by the Railway Bureau, free of charge, which means a saving to shippers of much trouble and annoyance.

CHINESE RAILWAYS PROPOSED.—The native gentry and others of Kuanghsi says the P. & T. Times have obtained permission from the Peking government to build railways in their own Province as without any foreign assistance as follows:

(1) a line from Wuchow to Kuei Hsien.

(2) from Kuei Hsien to Nanning, for future extensing to Kuangtung.

The company is to have a capital of Tls. 5,000,000. It is believed that this step of the natives is to check the advance of the French in Kuanghsi.

FUHKIEN RAILWAY.—A despatch from Amoy states that the Fuhkien Railway Company has ordered two locomotives for the above named railway. One of them has been ordered through the Mitsui Bussan Kaisha in Amoy. Each is to cost 18,000 dollars.

The railway sleepers and rails were ordered through the Mitsui Bussan Kaisha, and about 40,000 sleepers will be delivered in Amoy in October at $1.15 per piece. The rails were ordered from Hanyang Iron Works through the Mitsui Bussan Kaisha. Tls. 50,000 have been sent to the Hanyang Iron Works in Hankow as a deposit against order.—*Shanghai Times.*

KOBE BELT LINE.—The branch railway line, forming a connection of the land and marine transport at Kobe was completed last month, and the line opened to traffic. The railway is only a little over two miles long, but it cost more than 1,200,000 *yen.* It branches off from the Tokaido Railway at Nada station, newly established between Sumiyoshi and Sannomiya, and reaches Onohama station through the Onohama suburb of Kobe. Construction required four years for completion, commencing in July, 1903. This railway is the forerunner of the Kobe harbor works, the construction of which will shortly be commenced.

THE SHUNTEH-FU-CHINAN-FU RAILWAY PROJECT.—The proposed railway line from Shunteh-fu, Chihli, to Chinan-fu, Shantung, has been prospected by Taotai Chu Nian-tien, in company with a railway expert, the work being carried out under instruction from H. E. Yuan Shih-kai, the Viceroy of Chihli.

It is reported that the work of prospecting for this railway has been completed. It will be 480 li in length, only 140 of which will be within the borders of Chihli. The cost of building it will be about five million taels Reports, plans and specifications relating to the project have been sent to the Board of Posts and Communications by H. E. the Viceroy Yuan Shih-kai.—*Shanghai Times.*

PROPOSED RAILWAYS IN TASMANIA.—The construction of a line between Burnie and Flowerdale is not considered advisable by the commissioners to whom Parliament referred the question, says the *Australian Hardware and Machinery.* The small population to be served and competition from sea carriage are the principal reasons assigned for the adverse report. Another proposed railway between Scottsdale and Branxholm is favoured by the commissioners. This line, which is 25 miles in length and of the usual 3-ft. 6.-in gauge, is estimated to cost £154,000. A bill is now before Parliament authorising the Tasmanian Investment and Trust Co. Ltd. to put down and run a line from the Derwent Valley railway to the western mining-fields of Tasmania. The measure is entitled "the Great Western Railway and Electric Power Act," but either steam engines, electric motors, or other motive power may be employed. The distance to be covered is not stated, but the time to be occupied in construction limited to seven years from January 1, 1908.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

KOBE HARBOR IMPROVEMENTS.—The ceremony inaugurating the construction of the Kobe Harbor Works took place September 16.

KUANTAN HARBOR IMPROVEMENT.—The dredger from the Tanjong Pagar has been at work for about three months at Kuala Kuantan preparing the way for the government engineers to prepare definite plans and estimates for the new harbor contemplated.

KYOTO PUBLIC IMPROVEMENTS.—The municipality of Kyoto is experiencing some difficulty in floating the six per cent. loan of nine million yen repayable in 30 years for the purpose of constructing electric railways, waterworks and sewer systems. It is not believed that the bonds are sufficiently attractive to interest the banks at that rate of interest.

PASIG RIVER WALL CONSTRUCTION.—Plans are being prepared for the construction of the balance of the river wall east of the bridge of Spain in Manila. The government has expended over half a million pesos on that part of the river lying between the bridge of Spain and the river's mouth. The Atlantic Gulf & Pacific Co. are the contractors for the principal part of the work. All the filling will be completed as soon as the sewer system is installed.

KOFU WATER WORKS.—It has been decided by the municipal authorities of Kofu City to expend 700,000 yen in the construction of a modern system of water works for that city, taking the supply from the Arakawa river.

CANTON CEMENT FACTORY.—The contract for the construction of the Canton Government Cement Factory at Canton was let recently to Messrs. Howarth Esrkine & Co. This contract covers the construction of the foundations and buildings and the price named in the contract is $100,000.

NANKING WATERWORKS.—Permission has been given by the Board of Agriculture, Works and Commerce to Taotai Li of Kiangsu to organize a company with a capital of Tls. 400,000 for the purpose of giving the city of Nanking an up-to-date water system. The promoter agrees to subscribe half the amount required and the balance of the stock will be taken by Chinese merchants in the cities of Hongkong and Singapore.

STAR FERRY WHARF.—This valuable construction at Kowloon is now complete. The builders were the Hongkong & Whampoa Dock Co. and Messrs. Leigh & Orange, the architects. The new construction takes the place of the old wharf which was destroyed by the typhoon. The new wharf is built along the sea wall instead of jutting out into the sea. It is built of wood and stands on steel piles making a substantial wharf sufficiently strong to resist the most formidable typhoon.

EXTENSION OF THE GAS WORKS AT DUNEDIN, NEW ZEALAND.—Tenders aggregating £31,443 have been accepted. The gas-holder is to be supplied by Weston & Wright's Gas-holder and Engineering Works at a cost of £10,830, while the stoking machinery and plant for handling the coal are to be furnished by W. J. Jenkins & Co., the cost being £7255. The same firm receive a contract at £4228 for a stage floor and other structural material. Reese & Budd are to furnish the firebrick goods and retorts at £4890, and Watson, Rhodes & Son are to put in the foundations for £4240.

BARREN JACK WATER WORKS, N.S.W.—Since the strike, work at Barren Jack has been going on apace. A great diversion weir has been completed, into which the Murrumbidgee River will be turned. At Powerhouse Gully 1½ acres of solid rock have been excavated to admit of the erection of the electrical generating plant to work the great Ledgerwood cableways (each capable of lifting loads of 15 tons) for swinging the material down on to the site of the dam. In order to convey with all despatch the material required for the construction of the dam, a railway is being built from Mahkoolma down Carroll's Creek, which, while keeping above the future water-level, reaches the dam at the level of the works. The line is some 28 miles long, having a 2-ft. gauge, with curves as sharp as a 99-ft. radius, and reaches Goondah siding at the 202-mile peg on the main southern line, where heavy gantries are being erected capable of lifting the heaviest pieces of machinery required at Barren Jack from the main trunk railway on to the 2-ft. gauge line. The rails for the line have been ordered from America. The locomotives to be used are of the type known as "Krauss," which can be worked either singly or coupled in pairs, and are being imported from Europe. To give an idea of the amount of traffic that will have to pass over this line during the construction of the dam, it may be mentioned that 48,000 tons of cement will be required, apart from the machinery and other material. The dam itself is to be built of red granite in blocks of 10 and 15 tons bedded in concrete. The total height from foundation to crest will be about 240 ft; 20 ft. thick at the top, broadening out at the bottom to 200 ft. and the reservoir when full will contain at a round computation nearly one and a-half times as much water as there is in Sydney Harbour.—*Aust. Hardware.*

SHIPBUILDING, GENERAL MARINE, FISHERIES, ETC

GERMAN STEAMERS FOR SZECHUAN.—Germany is reported to have ordered seven shallow draft steamers for use on the Yangtse and Min rivers.

TO DYNAMITE SHARKS.—An American marine engineer has succeeded in destroying sharks successfully by means of dynamite bombs concealed in lumps of meat.

DOCKYARD AT SEOUL.—Japanese capital is interested in the proposed scheme to construct a large dockyard on Roze island, which lies just outside Chemulpo harbor

DREDGERS FOR SHANGHAI.—Two huge Dutch dredgers towed by two tugs are on their way to Shanghai. An accident at Suez to one of the tugs caused a delay at Suez.

SWEDISH ORIENTAL STEAMSHIP LINE.—This company which was but recently organized, inaugurated its service to Japan at Gottenburg on August 20 when the first steamer started for Japan.

SHELL FISH DESTROYED.—The mud formed in Yokohama waters as a result of the heavy floods in Japan has resulted in the destruction of all the shell fish. The loss is estimated at yen 60,000.

PHILIPPINE SHIPPING.—The suspension of tonnage dues at Philippine ports has resulted in the attraction of all the principal lines and has greatly increased the number of vessels calling at Manila.

JAPANESE DOCKS AND SHIPYARD IN CHINA.—Advices from Hankow announce the purchase of 40,000 fong of land in Hanchiaokou by Japanese capitalists as a site for extensive docks and shipyards.

RIVER PEARLING IN KAMCHATKA.—A Russian is reported to have discovered shells containing a milk-colored dull pearl at the mouth of a tributary river about 250 versts from the sea coast of Kamchatka.

O. S. K.'S CALCUTTA SERVICE.—The steamer Yerimo Maru of the Osaka Shosen Kaisha sailed from Japan with a cargo of matches, etc., for Calcutta on September 6th, inaugurating the Kobe-Calcutta Service of this company.

TOYO KISEN KAISHA DISCONTINUES SOUTH AMERICAN SERVICE.—It has been announced that a loss of 70,000 yen has been sustained by the company since the opening of this service and it was decided last month to abandon it.

FUSAN SHIPPING CO.—The businessmen of Fusan are promoting a shipping company called the Kankoku Engan Yusen Kaisha for the purpose of inaugurating a regular steamship service among the fishing stations on the Korean coast.

DREDGES FOUR HUNDRED TONS AN HOUR.—The dredger constructed by the Osaka Iron Works for the Sasebo Naval Dockyard was tried out in the harbor September 6, exceeding all expectations. The dredge is 154 feet in length, 31 feet wide and 12 feet deep.

NIKOLAJETAK FISHERIES.—There are two extensive fisheries established at the post of Nikolajetak on the coast of Siberia, both equipped with modern refrigerating plants. Recently, several cargoes have been shipped by steamer to supply the European market.

NETHERLANDS PATROL BOAT.—Messrs. Riley, Hargreaves & Co. of Singapore are constructing a patrol boat of the stern wheel type to draw about two feet of water and for use on shallow rivers, for the Netherlands India Government which will be completed shortly.

NEW STEAMER FOR THE C. P. R.—A new steamer to be known as the Empress of Britain and which will be faster than the Empress of China or the Empress of Japan has been ordered by the Canadian Pacific Railway. She will be plaecd on the service between England, Japan and China.

REVENUE CUTTER FOR SIAM.—The Siamese government has placed an order through Mr. J. M. Dunlop of Bangkok with the well known firm of Thorneycroft & Co. of Chiswick. The vessel will cost about £16,000 and will be used as a patrol boat in the gulf of Siam to protect the coast from smugglers.

CHOSEN YUSEN KAISHA.—A company has been formed at Fusen, Korea by a number of Japanese residents with a capital of a million yen for the purpose of providing water carriage for the ports along the southern coast of the peninsula. The company will ask the Korean government for a subsidy of 25,000 yen annually.

FISHING VILLAGE AT PORT ARTHUR.—The Japanese government intends to construct a model fishing village at Liafu near Port Arthur the buildings in which shall be rented free to Japanese fishermen and after a certain number of years the successful fishermen will be given titles to the homes. The sum of 5,000 yen will be spent in this project annually.

N.Y.K.S BIG SHIPS.—The two steamers of 8,500 tons each now under construction for this company at the Kawasaki Yard at Kobe when completed will be placed on the company's European run. It is also reported that the company will order ten additional steamers of the same type from the Kawasaki and Mitsu Bishi yards in the near future.

TSURUGA-VLADIVOSTOCK S. S. SERVICE.—There is keen competition on rates between the Russian Volunteer Fleet and the Osaka Shosen Kaisha between these two points. The Russians have added a number of weekly service vessels and have reduced rates much lower than the Japanese line. It is understood that the Osaka Shosen Kaisha will meet all cuts.

DEEP SEA FISHING CO.—A company has been formed in the Bonin islands for the purpose of shark fishing in the South Sea and sealing in the North Pacific. The governor of the islands has presented a fishing boat to the company as a local subsidy and an effort is being made to induce the Tokio government to grant a substantial annual subsidy to the company.

LARGEST JAPANESE BUILT STEAMER LAUNCHED.—The Tenyo Maru, a steamer of 18,000 tons, was launched from the Mitsu Bishi Dockyard at Nagasaki on September 14th and is the largest vessel built in Japan. She was constructed for the Toyo Kisen Kaisha and two sister ships have been ordered by the company from the same yard.

JAPANESE WHALING INDUSTRY.—A curing company in connection with the whaling industry of Japan has been organized with a capital of one million yen. It will establish four stations in Japan and one in Korea. It was decided recently that for the present there would be no close season for the whalers as was proposed some time ago owing to the setback it would prove to the industry at this time when it is practically in its infancy.

MORT'S DOCK AND ENGINEERING CO. LTD., of Sydney, have in hand to the order of the Port Jackson Cooperative S.S. Co. a large steamer for the Manly ferry traffic. This vessel, built of steel, will be capable of carrying 1400 passengers at a speed of 14 knots an hour. Her engines are to be triple expansion, 1150 h.p., with cylinders 17½, 20½, and 45 in. in diameter, having a stroke of 27 in. There will be two steel boilers with a working pressure of 160 lb.

GERMAN ACTIVITY.—A new steamship line, to comprise at least eight freight ships and owned by the Jebsen interests of Hamburg, will invade the Oriental field in the near future from Seattle, according to Captain Hans Jebsen of the *Tolosan*, a cousin of M. Jebsen, of Hamburg. Captain Jebsen will have the local management of the vessels, of which the *Tolosan*, in port at Seattle last month, will make the maiden voyage. The ships will be the *Tolosan, Baker, Brandford, Elsa, Emma, Erica, Erna* and *Eva*.

SHIPPING FACILITIES AT NEWCASTLE.—The Premier of New South Wales (Hon. J. H. Carruthers) has promised that the new wharves, 1200 ft. long, at Newcastle shall be completed within 12 months. New dolphins are to be put down for the mooring of vessels, and the water in the harbour and on the bar is to be deepened. In this connection it is interesting to learn that an English company has been inquiring as to the depth of water at Newcastle, with a view to running a line of vessels to and from the port. To facilitate the loading of coal at the port, the Railway Commissioners are having costly railway works constructed, and four dumping machines are to be erected on the wharves.—*Australian Hardware and Machinery.*

THE GYROSCOPE AS SHIP'S COMPASS.—According to the *Chicago Tribune*, Dr. H. Anschutz-Kampfe has invented a new form of steering standard, dependent for its operation on the principle of the gyroscope, which is driven electrically and carries an indicating needle pivoted within an arc similar to that of the ordinary compass. It does not, of course, necessarily point north and south, but it tends continually to point in any direction in which it may be set, and as it is wholly unaffected by magnetic influences it would prove valuable in warships, which contain such huge masses of iron and steel in guns and equipment. It is not proposed to displace the mariner's compass, but to employ this instrument as an adjunct.

MINES, MINERALS AND THE METAL TRADE

JAPAN COPPER FOUNDRY.—An effort is being made to interest British capital in the establishment of a large copper foundry in Japan.

PAHANG'S GOLD OUTPUT.—For the seven months ending July 31, 6257 oz. compared with an output of 10,089 oz. for the same period last year.

ANHWEI COPPER MINES.—Operations have begun in the development of the mines at Tungkuan Shan in Anhwei under the direction of a foreign mining engineer.

FRENCH COAL CONCESSION IN YUNNAN.—In addition to the concession of iron mines in Yunnan the French government claims the right to a coal concession in the same district.

KEROSENE GEYSER IN JAPAN.—The Japan Kerosene Oil Co. is having the benefit of a remarkable gusher the outburst of which occurred on the company's property at Gochi recently.

PERAK SYNDICATE.—This organisation has been registered in London with a capital of £5,000. It has for its purpose the acquiring and development of mines in Perak and elsewhere in Asia.

MINING IN FORMOSA.—Coal, copper and gold are taken out in quantity in the Keelung district of Formosa. The coal is said to be of good quality and about 100,000 tons are taken out annually. Little development work has been done but the prospect is bright for the future of mining in the island.

THE FUSAN COAL MINES.—The Fushan coal mines are doing a flourishing business and the coal is said to be as good as Kaiping. They are supplying all the coal used by the South Manchurian Railway as well as other manufacturing interests.

SAGHALIEN MINERAL DEVELOPMENT.—The governor of Saghalien is reported to be on his way to St. Petersburg with plans for the development of the extensive mineral wealth of the island. He expects to receive support from the imperial government.

MONGOLIA'S MINERAL WEALTH.—The imperial agent at Kulun has called attention to the rich deposits of mineral wealth in Mongolia and urges the government to encourage foreigners in its development owing to the scarcity of Chinese capital available at this time. Russian capital is anxious to gain a foothold.

GOLD STRIKE IN SIBERIA.—The manager for the North-East Siberia Co. reports that a rich placer field has been developed by prospectors at Anadyr Bay, Siberia. According to the report, the dirt runs from $1.00 to $5.00 a pan. One of the directors left Seattle for the scene of the rich find in July and his report is awaited with interest.

HANYANG IRON WORKS.—A dispatch from Hankow announces that the Hanyang Iron Works are flooded with orders for steel rails from every section of China and it has become necessary to install two new modern furnaces to handle the work. An electric light plant has been installed throughout the works so that operations may be carried on night and day.

BONUS FOR COPPER.—The Government of New Zealand is offering a bonus of £2000 for the production of good marketable copper from ores mined and smelted in the colony. The terms are:—For the first 1000 tons, to be produced by June 30, 1909, £1000; the second 1000 tons, to be produced by June 30, 1910, £500; and the third, 1000 tons to be produced within a year later, £500. The bonus is to be divided in the event of two or more companies being equally entitled to it.

PORT KEMBLA SMELTING WORKS.—Work is progressing rapidly on the smelting works at Port Kembla, New South Wales. The foundations are under way while the 200 foot chimney is completed to a height of 80 feet. The Electrolytic Copper Refinery Co. is arranging to construct its works alongside the smelter as soon as the materials arrive. The magnitude of these works says the *Australian Hardware and Machinery* journal may be gathered from the exetnt of the foundations.

BONUS FOR QUICKSILVER.—A bonus of 4d. per lb. is again offered by the New Zealand Government for the production of the first 100,000 lb. of good marketable, retorted quicksilver, free from impurities. One-third of the total quantity is to be produced by March 31, 1910, and the remaining two-thirds by March 31, 1911. No bonus will be paid till the whole has been produced, and in the event of more than one company qualifying for the bonus, it will be divided between them.

with a capital stock of yen 10,000,000. The promoter is Tozaburo Suzuki, the founder of the Japan Sugar Refining Co.

BANK AT PUKET.—An effort is being made to interest the banking institutions of the Straits Settlements in the establishment of a branch bank at Puket for the benefit of the Tongkah district which is now entering on an era of development.

TAYABAS SAWMILL AND LUMBER CO.—The Tayabas Co. has started operations and is equipped with a mill capacity of 40,000 feet a day. The company has the contract for the supplying of 600,000 feet of lumber to the Philippine Railway Co.

CHINESE CEMENT FACTORY.—The Chinese government is constructing a cement factory at Ponan, Kwantung province, which when completed will cost 300,000 taels. It is expected that the plant will be in operation about the beginning of next year.

FOOCHOW COPPER MINT.—Arrangements have been made by the viceroy for the repayment of the Tls. loan from the Hongkong and Shanghai Banking Corporation at the rate of Tls. 10,000 a month from the revenues of the government dockyard at Foochow.

JAPAN'S SUGAR TRUST.—An agreement is reported between the Tainan Sugar Manufacturing Co. of Formosa and the Taiwan Sugar Manufacturing Co. for amalgamation of their respective interests. The former company recently increased its capital to yen 2,000,000.

SILVER EXPORT PROHIBITED.—A petition has been sent up to the governor by the Kirin Merchants against the exportation of silver from that province as the outflow is seriously affecting trade. The governor issued instructions that in future no one will be allowed to transport more than $1,000 silver.

JAPANESE BANKS.—The number of Japanese banks at the end of September was 2223 and the amount of capital represented 610,583,669 yen. This shows a decrease of three in the number of banks and an increase of 239,000 yen in the amount of capital as compared with the figures at the end of the previous month.

OSAKA SPINNING CO.—The Osaka Spinning Co. proposes the issue of debentures to the amount of one million yen to be used in the construction of a new factory equipped with 1,700 weaving looms and 17,000 spindles at Osaka. It expects to commence operation about next March and be prepared to export shirtings.

ORIENTAL GLASS MANUFACTURING CO.—The factory of this company at Osaka will be ready for operation by the first of December, when it will be able to turn out 80,000 bottles daily, which figure represents the present importation. The company comprises French, Belgian and Japanese capital and is capitalized at 1,500,000 yen.

KOBE SUGAR REFINERY.—The payment of a quarter of the capital of the Kobe Sugar Refining Company, which has increased its capital from Y200,000 to Y2,000,000, has been completed, and the fact was duly registered. The building of the company's factory in Hyogo is now almost completed, and the machinery is now being installed. The accommodation now made is sufficient to produce 120 bags of sugar a day.

A BELGIAN RUBBER-VENTURE.—The Galang Exploitation Company has just held its annual general meeting at Brussels. It holds two estates in the district of Rhio, called Hollandia and Belgica. Hollandia has over 200,000 rubber trees not yet bearing, and Belgica over 390,000. The capital of the Company, 750,000 guilders—is sufficient for extensions. The directors propose to raise the capital to one million of guilders.

IMPERIAL HOTEL EXTENSION.—It was recently decided at a meeting of the shareholders of the Imperial Hotel at Tokio to raise the capital of the company from 1,200,000 yen to 2,000,000 yen and the difference expended in tearing down the existing building and rebuilding on the site now occupied by the minister of state for home affairs as an official residence. It is also proposed to convert the present site into a garden and to have the new building occupied before the exposition.

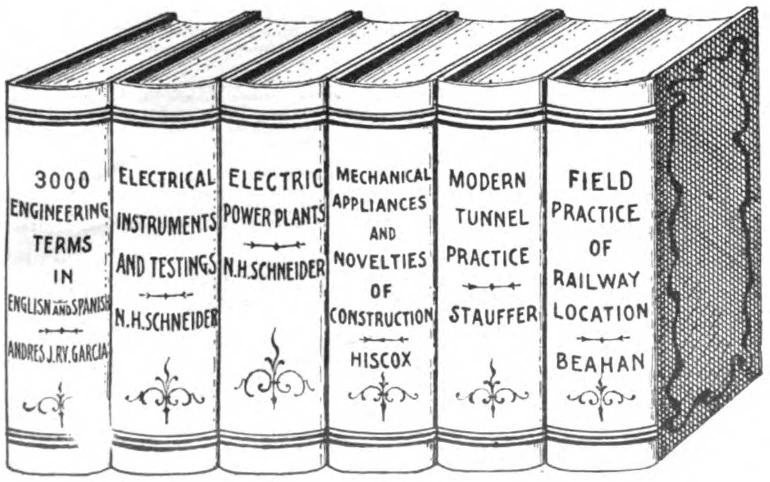
HEMP STATISTICS, 1st NOVEMBER, 1907

(Courtesy of C. S. NICHOLSON, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 31st October		647,762 *Bales.*
Arrivals of hemp at Cebu up 31st October		169,264 *Bales.*
Arrivals of hemp at all Ports up 31st October		817,026 *Bales.*
Stocks on hand in Manila and Cebu on 1st January		63,432 *Bales.*
TOTAL		880,458 *Bales.*
Export to all parts to date 31-10-07	765,367 *Bales.*	
Local consumption estimated at	6,879 "	772,246 *Bales.*
Total stocks at Manila and Cebu on 1st November, 1907		108,212 *Bales.*

EXPORT OF HEMP, OCTOBER, 1907.

Date	Vessel	London	L'pool	Atlantic U. S.	Pacific East & California	Australia	Other pts.	Total Bales
	F'wd:—	210,530	74,946	270,101	35,604	10,417	57,248	658,846
Oct. 1	Sungkiang.........Cebu	3,755	640				250	4,645
" "	C. Lopez y Lopez		2,900				160	3,060
" "	Taming	735					100	835
" 2	Bombay Maru	10,830						10,830
" 4	Rubi						311	311
" "	Socotra	1,125	1,975				675	3,775
" "	Loongsang	1,525	975				352	2,852
" 7	Yawata Maru					1,408		1,408
" 8	Keemun				11,136			11,136
" "	Tean	340						340
" "	Louqsor	1,910						1,910
" 10	Sikh			4,500				4,500
" 11	Yuensang	170					805	975
" "	Zafiro	1,490	250				1,639	3,379
" 14	Changsha					200		200
" "	Prinz Waldemar						50	50
" 15	Taming	1,375	50				700	2,125
" 18	Rubi						170	170
" "	Loongsang	292					212	504
" 19	Kumeric				1,800		350	2,150
" "	Louqsor ....Cebu	2,738	1,851				200	4,789
" 22	Tean		578					578
" 25	Yuensang		250				200	450
" 26	Kumano Maru						404	404
" "	Zafiro	1,000	1,128				1,120	3,248
" "	Sambia...........Cebu						100	100
" "	Sungkiang............do		1,400					1,400
" 28	Isla de Panay		1,922				40	1,962
" "	Muncaster Castle			18,733				18,733
" 29	Eastern						196	196
" "	Taming	300	386				11	697
" "	Orwell	14,025						14,025
" 30	Oanfa				2,303			2,303
" 31	Kaifong...........Cebu	1,352	749				380	2,481
		253,492	90,000	293,334	50,843	12,025	65,673	
	Corrections		+ 500			+ 140	— 640	
	TOTAL	253,492	90,500	293,334	50,843	12,165	65,033	765,367



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FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for October, 1907.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation do do (new)	1865 1907	$15,000,000	80,000 40,000	$125 $125	$125 $125	*g* £1,000,000 *s* $11,750,000 *i* $250,000	$1,797,167	30-6-07	£1.15|- for half year ending 30.6.07 @ ex 2|2⅝=$16 04 per share	5	$647½ $640 new issue £78
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	*c* £12,735 $300,000	$71,293	31-12-06	$2 (London 3|6) for 1903	....	$51
Russo Chinese Bank	18	Rbs. 15,000,000 Tls. 2,000,000	80,000 16,000	Rbs. 187½ Tls. 125	Rbs. 187½ Tls. 125	*g* Rbs7,130,500 *s* Rbs2.000,000 *s* Tls 800,000	Rbs41,	31-12-06	9 per cent		Tls. 175
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,675,000 *j* $200,000	$233,638	31-12-05	$20 for 1905	7¼	$270
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	*g* £110,000 *s* Tls. 100,000 *f* Tls. 50,000	Tls. 185,529	30-6-06	Interim of 7|6, for account 1906 at ex. 2-10-11-16 per tael	6	Tls. 75 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	*s* $3,000,000 *g* £70,000 *f* $456,407 *j* £125,137.15 *u* $817,628	$1,460,490	31-12-06	Final of $12 making $42 for 1905, and interim of $30 for account 1906	5½	$760
Yangtsze Ins. Association, Ld.	1862	$800,000	8,000	$100	$60	$850,000 *j* $136,287 *f* $ 15,527	$461,476	31-12-06	$12 for year ending 31. 12. 05	7	$170 sellers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 *x* $320,449 *f* $7,616	$362,980	31-12-06	$6 and bonus $2 for 1905	9¼	$86 sales
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,256,483	$435,236	31-12-06	$40 for 1905	13¼	$300 buyers
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$365	31-12-06	$1 for 1906	6¾	$15 buyers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 *i* $96,988	Nil.	30-6-07	$4 for year ended 30-6-07	10½	$37½ ex div.
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	*e* $250,000 *d. i.* $550,000 *f* $ 86,989	$27,101	30-6-07	$1 for 1st half year ending 30-6-1907	7¼	$27½
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	*m* £600,000	2) 60,000 2) 60,000	£5	£5	£60,000 *i* £270,000	£3,694	31-12-06	5|- @ ex. 2-2¾=$2.24 per share for 1906	3¼	$41 $29
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 54,372	Tls. 13,327	31-12-06	Interim of Tls. 1¾ for a|c 1907	11½ 10½	Tls. 47sellers Tls. 48½ buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£400,000 *i* £1,871	£172,370	31-12-06	Interim of 1|- (Conpon No. 8) for a|c 1907	4½	44|-
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 *i* $32,957	$137	30-4-07	$1.00 50 cts. for year ended 30-4-07	4¾ 5	$21 sales $10 buyers
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 *d* Tls. 419,479 *e* Tls. 62,000 *i* Tls. 81,200 *q* Tls. 30,000	Tls. 18,730	31-12-06	Final of Tls. 2 making Tls. 6 for 1906	12½	Tls. 48 sales
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	*o* $345,741 *e* $450,000 *r* $ 56,848	$9,218	31-12-06	$8 for year ending 31-12-06	8¼	$98
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	*Dr.* $138,523	31-12-06	$3 for 1897	....	$21
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 8,935	31-8-06	Tls. 4. (8%) for year ending 31-8-06	4½	Tls. 87½ sales
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	*d* £110,000 *h* £12,289	£12,546	28-2-06	Interim of 1|6 for account year ending 28-2-07	4	Tls. 15½ sellers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	*Dr.* £11,358	31-3-07	No. 12 of 1|-=48 cents	....	$8½ buyers
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	*z* 18,000	$25	$25	$64,124	$10,335	31-12-06	$1¾ for year ending 31-12-06	10¼	$17
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$2,000,000	40,000	$50	$50	$550,000 *t* $23,152 *i* $30,000	$3,047	31-12-06	Interim of $2 for six months ending June 30th 1907	6	$67½
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	*v* $50,000 $100,000	$491,580	30-6-07	$4 for half year ending June 30th 1907	8	$100 buyers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 10,459	30-4-07	Tls. 3 for year ending 30th 1907	4	Tls. 77 sales
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	14) 36,000	Tls. 100	Tls. 100	*b* Tls. 487,210 *r* Tls. 100,000 *p* Tls. 190,100 *e* Tls. 75,000	Tls. 23,117	31-12-06	Interim of Tls. 8 for a|c 1907	8½	Tls. 217½ sellers
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 15,000	Tls. 3,388	28-2-07	Tls. 6 for 14½ months ending 28-2-07	6	Tls. 103
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	$10,908	30-6-07	$2¼ for year ending 30-6-07	9¾	$23 sellers
Astor House Hotel, Ld. (Tientsin)	....	Tls. 100,000	2,000	Tls. 50	Tls. 50	Tls. 35,000 *e* Tls. 10,000	Tls. 1,013	28-2-06	Final of Tls. 6½ making Tls. 11½ for year ending 28-2-06.	8¼	Tls. 140 buyers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	*n.* $1 000	$9.178	31-12-06	$1.80 for 1906	13	$14
Hongkong Hotel Co., Ld.	1866	$600.000	12 000	$50	$50	$648,975 *r* $36,075	$10,925	31-6-07	$4 for 1st half-year ending 30-6-1907	10	$100 buyers
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	*e* $250,000	$56,218	31-12-06	Interim of $3½ for half year ending 30-6-07	7¼	$96 sales
Humphrey's Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	*i* $208,386 *e* $50,000	$11,567	31-12-06	80 cents for 1906	7¾	$10½

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCKS	When Established	CAPITAL	No. of Shares	Value	Paid Up	RESERVE	WORKING ACCOUNT	Date	LAST DIVIDEND	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$1089	31-12-06	$2½ for 1906	7	$36
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78.000	Tls. 50	Tls. 50	Tls 869,493; e Tls. 170,000	Tls. 61,978	31-12-06	Interim div. of Tls. 3 per share for % 1907	7½	Tls. 101 buyers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 71,685	Tls. 1,973	31-12-06	Final of Tls. 5 making Tls. 8 for 1906	....	Tls. 100 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,519	31-12-06	Interim of $2 for six months ending June 30th 1907	8½	$48
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000; Tls. 45,939	Tls. 64,986	31-10-06	Tls. 10 for year ended 31-10-06	18	Tls. 55 sellers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $60,000	$14,269	31-17-07	50 cents for year ending 31-7-07	4¾	$10½
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 36,211	30-9-06	Tls. 6 for year end. 30 9-06 (8%)	11½	Tls. 53
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	7) 8,000	Tls. 100	Tls. 100	none	Tls. 31,469	31-12-06	Tls. 8 for 1906	8¾	Tls. 90
Soy Chee Cotton Spinning Co., Ld.	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	17½	Tls. 280 sellers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12-6	£1,299	£638	31-12-06	1s. 3d. for 1906	9	$ 6½
Campbell, Moore & Co., Ld.	1886	$12,000	1,200	$10	$10	$9,000	$653	31-12-06	$3 for 1905	....	$20 sellers
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	none	Nil.	31-12-06	$1 for 1904	....	$10 sales & b.
China Flour Mill Co., Ld.	---	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 50,000	Tls. 889	31-12-05	Final of Tls. 5 making Tls. 10 for 1905	....	Tls. 50 buyers
China Light & Power Co., Ld.	1901	$550,000	50,000	$10	$10	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$6 buyers
Do. do. Special Shares	1907		17) 50,000	$1	$1						
China Provident Loan & Mortgage Co., Ld.	1898	a $1,000,000	100,000	$10	$10	$115,000	$855	31-12-06	80 cents for 1906	8½	$9½
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	i $60,000; $5,000	$2,974	31-7-06	$1.30 for year ending 31-7-07	8	$16½ sales
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$11,000	$10,804	31-12-06	Interim div. of 50 cents per share for % 1907	8¾	$11½ buyers
Hall & Holtz, Ld.	....	$420,000	21,000	$20	$20	$186,000	$15,002	28-2-07	$2½ for year ending 28-2-07	11½	$20½ buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$2,953	28-2-07	$1.00 for year ending 28-2-07	6¾	$14¾ sales
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $105,000	$4,361	31-12-06	Interim of $4 for half year end. June 30th 1907	9½	$240
Hongkong Rope Manufacturing Co., Ld.	1883	$500,000	50,000	$10	$10	$65,000	$4,212	31-12-06	Interim of 80 cents per share for % 1907	8	$25½ buyers.
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500; i Tls. 27,603	Tls. 10,374	31-10-05	Third interim div of Tls. 7½ making Tls. 22½ account 1907	9½	Tls. 315 buyers.
Peak Tramways Co., Ld.	1907	$750.000	25,000	$10	$10	none	$2,655	30-4-07	$1 per share for period from 19th Oct. to 30th April, 1907	8½	$12 buyers
Do. (New)			50,000	$10	$1						$2 buyers.
Philippine Co., Ld.	1904	$675,000	67,500	$10	$10	none	Dr. P. 34,324	31-12-05	None	....	$5 buyers
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 7,990	31-12 06	Interim of Tls. 3½ for a/c 1907	7¾	Tls. 107 sales
Shanghai Horse Bazaar Co., Ld.	1904	Tls. 270,000	5,400	Tls. 50	Tls. 50	Tls. 67,323	Tls. 9,751	31-12-05	Tls. 4 for 1905	....	Tls. 36½ sellers
Shanghai Pulp & Paper Co., Ld.	....	Tls. 450,000	4,500	Tls. 100	Tls. 100	Tls. 45,000; e Tls. 8,000	Tls. 3,354	31-12-06	Final of Tls. 5 making Tls. 10 for 1906	....	Tls. 66 buyers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820; u Tls. 50,000	Tls. 7,843	31-10-06	Interim of Tls. 5 (25%) account 1907	9½	Tls. 108 sales
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 85,592	31-12-05	Interim of 15/- for % 1907 (old); Interim of 11/-3 for % 1907 (n.)	....	Tls. 315 buyers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $41,934	28-2-06	None	....	$22
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	478	31-5-07	40 cents for year ending 30-5-07	6¾	$5½
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259; e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 97
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$349	31-12-06	First year	....	$11½
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,300	31-5-07	80 cts. on 9,900 ord. shares & $19.80 on 100 founder shares for year ending 31-5-07	8	$10
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000; $25,000	$5,482	31-12-06	Final of 40 cts. making 80 cts. per share for year ending 31-12-06	7½	$11
William Powell, Ld.	1901	$150,000	15,000	$10	$10	none	$41	30-6-07	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$5¼ sales

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.	
China Government, 7 per cent. Silver Loan 1886 E	Hongkong&Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.	Plus accrued interest
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡		$500,000	$500	§ all	Half yearly, June 30th and December 31st	par.	
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902		Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 99	
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903		Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	Tls. 105	
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	... .	£500,000	¶	£431.960	Half yearly, June 30th and December 31st	par.	
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.	
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	... .	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.	

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 5,725 shares unissued.
2 First issue of 60,000 of which 10,411 unalloted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unalloted.
6 1,616 shares unalloted.
7 842 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 198 shares unissued.
15 22,250 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government-Kuping Tls. 5,000,000.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
*** Redeemable at par on 30th June, 1952.
Dr Deficit.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, October 31, 1907)

Date of Formation	Capital	Capital paid up	No of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	....	25% for year ending 31-3-07	Belat Tin Mining Co., Ltd	12.25	12.50	$12.50
1907	$300,000	225,000	22,500b*	10	10	....	....	Bruang Ltd	8.00	8.25	8.25
1901	$600,000	600,000	60,000	10	10	....	20% for year ending 30-4-07	Bruseh Hydraulic Tin Mining Co., Ltd	14.50	15.00	15.00
1903	£400,000	350,000	350,000a	1	1	....	....	Duff Development Co., Ltd	2.25	2.40	2.40
1905	£30,000	30,000	30,000	1	1	....	3/- during 1906	Jeher Hydraulic Tin Mine, Ltd	....	9.00	9.00
1907	$400,000	375,000	37,500b	10	10	....	....	Kanaboi, Ltd	9.50	10.00	10.00
1901	£60,000	60,000	60,000	£1	£1	....	1/ interim during 1907	Kinta Tin Mines, Ltd	12.00	12.50	12.50
1906	£100,000	£90,000	90,000c	£1	£1	....	....	Kledang Tin Mining Co., Ltd	12.50	13.00	13.00
1905	$150,000	99,000	9,900d	10	10	6,000	25% interim for 1907	Kuantan Tin Mining Co., Ltd	15.75	16.25	16.25
1906	£120,000	120,000	120,000	1	1	....	....	Lahat Mines Ltd	7.75	8.25	8.25
1906	£30,000	30,000	30,000	£1	£1	....	....	Malaya and Siam Corporation, Ltd	....	£1.5.6	£1 5s. 0d.
1906	$450,000	337,500	45,000	10	7.50	....	....	Malacca Tin Dredging Co., Ltd	7.00	7.50	7.50
1906	£250,000	179,500	600,000j	5/-	5/-	....	....	Pahang Consolidated Co., Ltd	39/6	40/-	40/-
			100,000	£1	£1	....	....	" " " 7% Pref	....	....	nominal.
1904	£120,000	100,000	100,000e	1	1	....	4/6 interim during 1907	Pusing Lama Tin Mines, Ltd	....	15.50	15.50
1905	£27,000	21,750	21,750f	1	1	....	1/- interim during 1907	Rambutan, Ltd	....	11.75	11.75
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust Gold Ming Co., Ltd, *Fully. pd.*	7.50	7.75	7.75
			150,000	1	18/10	....	1/- " " "	.... *Contrib*	7.50	7.75	7.75
1905	£40,000	35,200	35,200g	1	1	....	....	Redhills Tin Mining Co., Ltd	13.50	14.00	14.00
1898	2.500,000	2,500,000	25,000	100	100	....	52½% for year ending 31-12-06	Redjang Lebong Mining Co	....	....	620.00
1900	$110,000	110,000	22,000	5	5	....	10% for 1907	Royal Johore Tin Mining Co., Ltd	2.00	2.25	2.25
1907	£80,000	80,000	80,000	1	1	....	....	Sempam Tin Mines. Ltd	9.50	10.00	10.00
1906	$850,000	850,000	85,000	10	10	....	20% interim during 1907	Serendah Hydraulic Tin Ming. Co., Ltd	....	13.25	13.25
1899	$230,000	230,000	23,000	10	10	....	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd	....	5.75	5.75
1907	£90,000	70,000	70,000d	£1	£1	....	....	Tekka, Limited	....	12.25	12.25
1902	£160.000	149,185	149,185h	1	1	....	5/- interim during 1907	Tronoh Mines, Ltd	16.00	17.00	17.00
1907	$60,000	60,000	600	100	100	....	....	Tunggal Tin, Ltd	....	....	nominal
								RUBBER			
1905	£150 000	£116,625	46,500i	1	1	....	10% interim for 1907	Anglo-Malay Rub. Co., Ltd. *Fully paid*	£5.2.6	....	£5 2s. 6d.
			93,500	1	15/-	....	....	" " " *Contributory*	....	4.11.0	£4. 11s. 0d.
1905	$200,000	105,000	10,500	10	10	....	12½% interim for 1907	Balgownie Rub. Estate Ltd. *Fully paid*	....	$35.00	$35.00
1904	£30,000	15,250	7,000k	1	1	....	....	Batu Caves Rub. Co., Ltd. *Fully paid*	....	5.12.6	£5. 12s. 6d.
			11,000	1	15/-	....	....	" " " *Contributory*	....	....	£4. 5s. 0d.
1903	£70,000	61,000	61,000l	1	1	....	30% for year ending 31-3-07	Bukit Rajah Rubber Co., Ltd	....	6.15.0	£6. 15s. 0d.
1906	$150,000	125,000	12,500m	10	10	....	....	Castlewood Rubber Co., Ltd	13.00	13.50	$13.50
1904	£12,000	10,500	6,000	1	1	....	15% for year ending 31-3-07	Cicely Rubber Estates Co., Ltd	5.10.0	£6.0.0	£5. 10s. 0d.
			6,000	1	15/-	....	20% for year ending 31-3-07	" " " " 5% Pref	5.17.6	£6,7.6	£5. 17s. 6d.
1905	£75,000	55,000	55,000n	1	1	....	10% for year ending 31-12-06	Consolidated Malay Rub. Estates, Ltd	£3.7.6	$.12.6	£3 12s. 6d.
1906	£310,000	243,227	181,454o	1	1	....	11% for year ending 31-12-07	Highlands & Lowds. Para Rub. Co., Ltd. *Fully paid*	....	£3.9.6	£3 9s. 6d.
			123,546	1	10/-	....	....	" " " " *Contributory*	....	£2.0.0	£2 0s. 0d.
1906	£180,000	£180,000	180,000	1	1	....	....	Kuala Lumpur Rubber Co., Ltd	....	1.12.0	£1 12s. 0d.
1906	f.175,000	f.146,250	80	f.250	250	....	....	Langen Rub. and Cocoanut Co., Ltd	....	....	f.300.
			460	f.250	187.50	....	....	" " " " " "	....	....	f.225.00
			160	f.250	250	....	....	" " " " " *Deferred*	....	....	f.250.
1906	$250,000	225,000	22,500p	10	10	....	....	Ledbury Rubber Co., Ltd	16.75	17.25	$17 25
1895	£50,000	50,000	40,000	1	1	....	10% interim for 1907	Linggi Plantations Ltd., *Ordinary*	£7.3.6	7.10.0	£7 2s. 6d.
			10,090	1	1	....	....	" " " 7% *Pref*	....	....	....
1906	£300,000	260,625	115,000	1	1	....	7½% for year ending 31-12-06	Malacca Rubber Plantations 7½% *Pref.*	£1.5.0	£1.7.6	£1 7s. 6d.
			140,000	1	1	....	....	" " Ordinary *Fully paid*	....	19/3	19/3
			45,000	1	2/6	....	....	" " *Contributory*	....	....	nominal.
1903	£30,000	20,000	20,000q	1	1	....	40% for 1906	Pataling Rubber Estates Synd. Ltd	....	£8.7.6	£8. 7s. 6d.
1906	$250,000	225,000	22,500e*	10	10	....	....	Ragalla Rubber Co., Ltd	....	13.25	$13.25
1904	£20,000	8.794	2,588d*	1	1	....	....	Sagga Company Limited	2.10.0	....	£2. 10s. 0d.
			12.412	1	10/-	....	....	" " "	....	....	....
1904	$100.000	100,000	1 000	100	100	....	20% for year ending 31-1-07	Sandycroft Rubber Co., Ltd	....	375.00	$375.00
1898	£30,000	28,150	263,000	2/-	2/-	....	25% interim for 1907	Selangor Rubber Co., Ltd	....	....	19/-
			37,000	2/-	1/-	....	....	" "	....	....	nominal.
1903	$250,000	250 000	2,500	100	100	....	....	Sing. & Johore Rub. Co., Ltd. *Fully paid*	....	200.00	$200.00
1905	$100,000	100,000	10 000	10	10	....	7½% for year ending 30/6/07	Sione Rubber Co., Ltd	....	17.75	$17.75
1906	£100,000	93,375	73,500	£1	£1	....	....	Sungei Kapar Rubber Co., Ltd.	£2.1.0	....	nominal.
			26,500	£1	15/	....	....			....	£2 1s. 0d.
1904	£50,000	28,795	6,920r	1	1	....	....	Sungei Way (Selangor) Rub. Co. Ltd	....	....	£2 7s. 6d.
			35,000	1	12/-6	....	....	" " " *Contributory*	....	£2 0.0	£2. 0s. 0d.
1904	£60,000	50,000	50,000s	1	1	....	55% for 1906	Vallambrosa Rubber Co., Ltd	8.10.0	£9.5.0	£9 5s. 0d.
								GENERAL			
1894	£5,377.10.0	£4,805	7,688h*	12/6	12/6	£1,300	10% for year ending 31-12-06	Bells Asbestos Eastern Agency, Ltd	....	....	7.00
1898	$225,000	225,000	4,500	50	50	112,500	15% & 2½% bon. for yr. end. 31-12-06.	Fraser & Neave, Ltd	150.00	....	150.00
1865	$15,000,000	15,000,000	80,000	125	125	1,000,000u	£1 15s. 0d. for ½ year ending 30/-6/07 at ex. £2 2s. 3-16d.=$16.04	Hongkong & Shanghai Bankg Corptn	....	....	605.00
			40,000	125		11,750,000x 250,000y					600.00
1905	$2,400,000	2,400,000	18,000	100	....	40,000	7½% for year ending 31-10-06	Howarth Erskine, Ltd	162.00	....	162.50
			6,000	100	....	....	7% for year ending 31-10-06	" " 7% *Pref*	120.00	....	120.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-06	Katz Brothers, Ltd. *Deferred*	....	....	135.00
			4,000	100	100	....	8% " " " " "	" " 8% *Cum. Pref*	....	....	nominal.
1901	$34,000	34,000	3,400	10	10	....	20% for year ending 31-10-06	Maynard & Co., Ltd	20.00	22.00	22.00
1899	$875,000	875,000	6.000	100	100	150 000	5% for year ending 31/12/06	Riley, Hargreaves & Co., Ltd	120.00	122.50	120.00
			2,750	100	100	....	7% for year ending 31/12/06	" " " " 7% *Pref.*	112 50	....	112.50
1903	$600,000	240,000	24,000t	10	10	....	....	Singapore Cold Storage Co., Ltd	....	7.00	7.00
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-07	Singapore Dispensary Ltd	50.00	55.00	55.00
1884	$200,000	200,000	2,000	100	100	35,000	20% for year ending 31-12-05	Straits Ice Co., Ltd	120.00	125.00	125.00
1890	$500,000	500,000	5,000	100	100	400,000 241 075z	5% interim during 1907	Straits Steam Ship Co., Ltd	200.00	205.00	200.00
1904	$40,000	$30,280	2,535u	10	8	....	....	Straits Tobacco Factory, Ltd	....	5.50	5.50
			1,000	10	10	....	....	" " " "	....	....	nominal.
1887	$3,000,000	2,500.000	250,000v	10	10	1,050,000 1,137 084a*	10% & 5% bon. ½ yr. end. 31-3-07	Straits Trading Co., Ltd	....	56.00	56.00
								DEBENTURES			
								Howarth Erskine, Ltd. 6% .... $ 600,000	....	....	3% prem.
								Riley, Hargreaves & Co., Ld. 6% .225,000	....	....	3% prem.
								Singapore Municipal 6% 400,000	....	....	20% prem.
								" " 5% 1,878,000	....	5%	3% prem.
								" " 4½% 1,600,000	....	....	5% prem.
								" " 4% 602,900	....	....	2% dis. nom
								Straits Engineering Sind. Ltd. 6% ..45,000	....	....	par.
								Tanjong Pagar. Dock Board 6% ...250,000	....	....	3% prem.
								" " " 5% ..1,050,000	....	....	par.

a 50,000 unissued
b 2,500 "
c 10,000 "
d 5,100 "
e 20,000 "
f 5,250 "
g 4,800 "
h 10,815 "
i 10,000 "
j 100,000 " *Ord.*
j 45,590 " *Pref.*
k 12,000 "

l [illegible]9,000 unissued.
m 2,500 "
n 20,000 "
o 5,000 "
p 2.500 "
q 10,000 "
r 8.080 "
s 10,000 "
t 36,000 "
u 465 "
v 50,000 "
w Special Gold Reserve Fund

x Silver Reserve Fund.
y Insurance Fund.
z Sundry Reserves.
*a** Sundry Reserves.
*b** 7,500 unissued.
*c** 20.000 "
*d** 5,000 "
*e** 2.500 "
*f** 916 "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, OCTOBER 1907

STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVE FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2800	-Y- 10	-Y- 10			31-12-06	8%	for 1 year	10 Sellers.
Club Hotel, Ltd.	185,000	1850	100	100	3,000	-Y- 943.52	31-3-07	7%	for 1 year	75 Sellers.
Grand Hotel, Ltd.	500,000	5000	100	100	5,000	-Y- 23,011.87	30-6-07	6%	for ½ year	150 Sales.
Helm Bros., Ltd.	186,000	3720	50	50	22.500	-Y- 2,916.83	31-12-06	20%	for 1 year	80 Sellers.
Langfeldt & Co., Ltd.	150,000	1500	100	100		Dr. 20 304.15	31-12-06		for ½ year	45 Sales.
C. Nickel & Co., Ltd. †	500,000	20000	25	25		1,470.97	31-10-06	16%	for 1 year	41 Nominal.
Yokohama Engine and Iron Works *	500,000	10000	50	50	50,000	-Y- 12,477.04	31-5-07	35%	for 1 year	90 Sellers.
Oriental Hotel, Ltd., Ordinary	250,000	3000	50	50	62,285.42		31-8-06	15%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference		2000	50	50				8%	for 1 year	50 Nominal.
The Union Estate, and Investment Co., Ltd. ‡	1,000,000	10000	100	100			First Year.			105 Sales.

† 285,000 unissued.

‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	105 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	DIVIDEND PER ANNUM.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 97.80
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 92.80
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 92.80
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 87.50
War Bonds (Gunji)	100	100	5%	June and Dec.	, 87.50
Imperial 5% Bonds (Goburi)	100	100	5%	March and Sept.	,, 85.00
Imperial Government 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 87.40
Kobe Water Works Bonds	100	100	6%	June and Dec.	,, 97.50
Osaka Harbour Bonds	100	100	6%	June and Dec.	,, 97.50
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 97.50
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 98.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 97.00
Sanyo Railway Company Debentures (2nd issue)	100	100	6%	April and Oct.	,, 98.50
Tokyo Stock Exchange Company	50	50	40%	June and Dec.	,, 135.95
Hokkaido Colliery (Tanko) Steamship Company, Limited	50	50	14%	July and Jan.	,, 94.90
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 139.00
Yokohama Electric Tramway Company, Limited	50	50	7%	July and Jan.	,, 47.00
Tokyo Railway Company Limited	50	50	9%	June and Dec.	,, 63.50
Keihin Electric Railway Company. Limited	50	50	13%	June and Dec.	, 85.00
Imperial Hemp Weaving Company, Limited	50	50	13%	July and Jan.	,, 58.00
Kanegafuchi Cotton Spinning Company, Limited	50	50	22%	July and Jan.	,, 115.00
Tokyo Cotton Spinning Company, Limited	50	50	20%	July and Jan.	,, 77.80
Fuji Gassed-Yarn Company, Limited	50	50	25%	July and Jan.	,, 115.50
Nisshin Cotton Spinning Company, Limited	50	12½	—	——	,, 13.00
Fuji Paper Mill Company, Limited	50	50	10%	June and Dec.	,, 51.00
Yokohama Dock Company, Limited	50	33	15%	June and Dec.	,, 65.50
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 90.00
Nippon Sugar Refinery Co., Ltd. (Tokyo)	50	50	20%	June and Dec.	,, 104.25
Dai Nippon Beer Brewery Company, Limited	50	50	15%	July and Jan.	,, 101.50
Tokyo Gas Company, Limited	50	50	15%	July and Jan.	,, 91.30
Kirin Brewery Company, Limited	50	50	8%	July and Jan.	,, 66.00
Tokyo Electric Light Company, Limited	50	50	10%	June and Dec.	,, 65.00
Yokohama Electric Light Company, Limited	50	50	15%	July and Jan.	,, 81.50
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 114 00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 87.00

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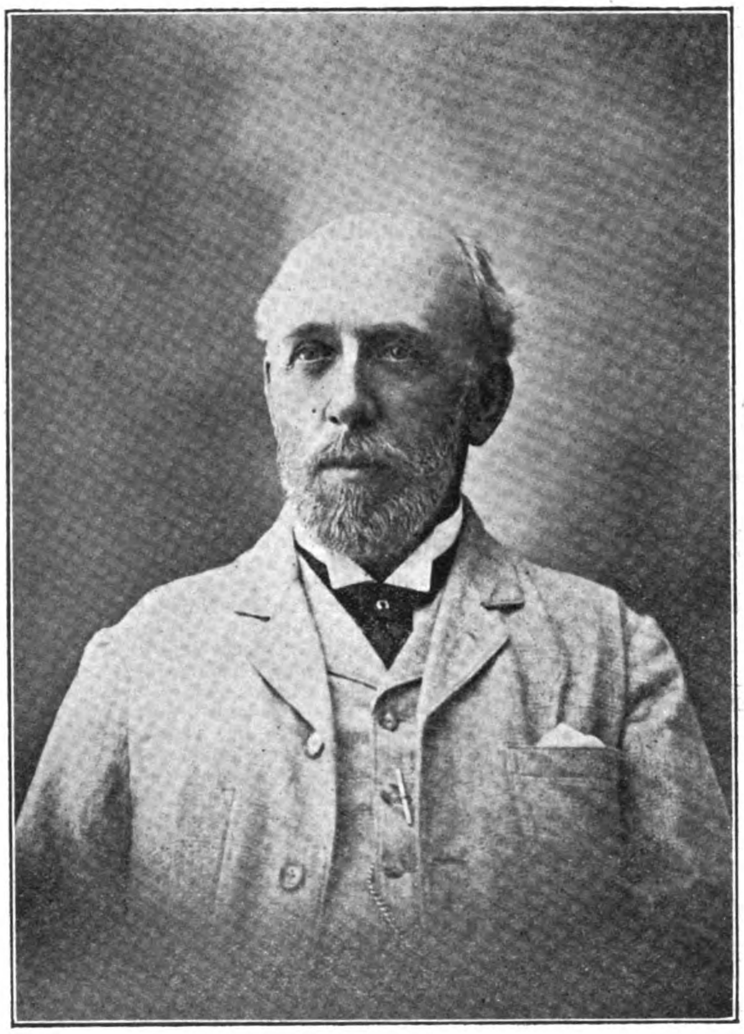
THE FAR EASTERN REVIEW

COMMERCE ⊛ ENGINEERING ⊛ FINANCE

VOL. IV. MANILA, P. I., SHANGHAI, AND YOKOHAMA, DECEMBER, 1907 No. 7.



MR. WILLIAM DANBY, M. I. C. E., HONGKONG

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

COMMERCE :-: ENGINEERING :-: FINANCE

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AMOY-CHIANG CHOW RAILWAY

Amoy is coming to the front for enterprise in providing transportation facilities for the growing trade of Fukien province as it affects that port, and this evidence is found in the construction of 30 miles of railroad connecting Amoy with Chiang Chow, now under way.

Amoy is situated on the west side of an Island of the same name in the estuary of the Dragon river. Southwest of Amoy is a smaller island called Kulangsu where all the foreigners live and it is on this island, at a point named Sing-su, that the railway begins. Singsu is a village on a narrow neck of land and a bridge is to be built connecting this point with the mainland a distance of about half a mile. The channel here is deep and, by building a pier, large vessels may be berthed at this point and unloaded for transhipment by railway. A steam ferry has been proposed between Kulangsu and Amoy, so that the latter port will have practically all the benefits of the railroad connection.

The building of the proposed line will probably take about two years, according to the promoters and as the construction offers no apparent engineering difficulties, greater progress may be made. In all there will be about 15 stations along the 30 miles of road.

The work now in progress is under the direction of experience overseers from Tamsui and local labor is depended upon. Several cuttings have been made and a culvert started, according to the report of the correspondent of the *China Mail.* Commenting on the future prospect for railway connections in South China as a result of the enterprise of Amoy the *Mail* says:

"Later on, no doubt, branches will be built to Tong An and Chin Chew, and eventually to Foochow northward, and to Swatow southward.

"How long will it be before the line will be joined up with the lines now building in the Canton Province? Shall any of us live to see cheap trips advertised from Hongkong to Amoy by rail, via the Kowloon Railway?"

SIAMESE RAILWAY RATES

While the energetic manner in which the Siam Government is extending the railway lines is the subject of much favorable comment the press is agitating a revision of the passenger and freight tariffs with a view to reducing the rates and placing the advantages of cheap transportation within reach of the agriculturists. The Siam *Free Press* commenting on this subject says:

Railway work in Siam is being rapidly pushed ahead and it is acknowledged on all hands that the Royal Railway Department is doing very excellent work in extending the line towards the North. At present, regular trains connect with Bangkok from Paknampo, and in a couple of years it is hoped that the extreme limits of the Northern provinces of Siam will be brought within a day's journey of the central Government of the capital. This is all very encouraging, but the general opinion which prevails at present is that the fares are exorbitantly high, a fact which prevents many from availing themselves of this convenient and rapid means of transit. The farmer of the interior does not as a rule take the saving of time into consideration so much as the saving of money. He is willing to travel by boat for a few atts a day even for a whole week, and does not take the labour and time into account; but to make the same journey in a few hours, he will hesitate to pay a sum, for example, of Tics. 5, though he may be sure to reap the benefit in the extra time saved.

"For this reason it is only the comparatively wealthy who travel and bring their products by train. The high fares have also the effect of keeping the prices of goods exorbitantly dear. Those carrying on trade in the different towns of the interior have to charge for their goods in proportion to the high rate of transit, and many have pointed out of the wisdom of modifying the present rates, showing forth that by doing so the railway traffic would soon double and consequently pay much better than it actually does.

THE COMPROMISE TARIFF BILL

The Philippine Tariff Bill will once more be brought before Congress, but in a modified form. The administration has recognized the futility of securing justice and fair play for the Islands from a trust-controlled Senate, and as a means of bringing prosperity to the Philippines, has accepted a compromise measure. Deaf to the urgent appeals of the president, the earnest pleadings of the Secretary of War, and the sound arguments presented by General Edwards and the delegates sent to Washington, the upper house stubbornly refused to grant a measure of simple justice to its wards in the Philippines.

This was clearly apparent during the last session and an effort was made by one of the Philippine delegates to find a basis for a compromise which would accomplish the desired result.

The general opinion of those acquainted with the facts and conditions surrounding the sugar industry and labor supply of the Philippines was that it would be impossible to grow a crop of over 400,000 tons of sugar for exports and judging from the experience of other sugar countries in developing the industry, it would take at least 20 years to reach this limit.

The beet sugar opponents of Philippine free trade also recognize this argument, and pointed out that Governor General Wright, Mr. de la Rama, and other delegates practically agreed on this estimate, and they advanced the argument that if the administration were sincere in its efforts to help the islands, it would accept a compromise measure limiting the importation of duty free sugars into the United States to 400,000 tons.

In a conversation held by one of the Philippine tariff delegates with the head of the opposition, this matter was brought up and the latter stated that if the administration would accept a compromise measure based on the reputed capacity of the Philippines and demonstrate its sincerity and consistency, they would withdraw all opposition and allow the bill in the compromise form to pass.

"We do not fear 400,000 or 500,000 tons of free Philippine sugars, but we do fear the menace of 1,000,000 or more tons we feel sure you can produce. We are not antagonistic to the islands, nor do we care to stand in the way of their prosperity, or hamper the administration in its mission. We want you people out there to have a chance to develop the islands, but we do not intend you shall do it at our expense. If you can grow only 400,000 tons a year and are willing to stand on that statement and be fair to us, we will be fair to you and allow the compromise. Otherwise, we will fight you to a finish. We have defeated you twice; we will defeat you this time, and we will defeat the bill every time it comes up. We have the support of the middle west, the great farming interests of the country are with us and we have the votes necessary to defeat any candidate who opposes our wishes."

To the Philippine tariff delegate this attitude appeared to be reasonable, viewed from the standpoint of the opposition leader. It appeared to him that if the Bill in the form in which it was presented could not receive the approval of the Senate, on the basis of the high principles involved, if the recognition of the just and equitable rights of the Philippines were impossible then the depressed state of affairs in the archipelago demanded some compromise, some measure which would bring immediate relief to the struggling planters and the business community, and allow the islands to develop leaving to the future the settlement of all the high principles involved and feeling certain that in the end justice in its fullest measure would be secured.

With ruin and foreclosure staring the sugar planters in the face, with their work animals decimated by the plague, with their mills lying idle, with a general state of depression in all branches of industry and commerce, but with an abiding hope and faith in the sense of justice of the American people, the Filipinos demanded some measure that would relieve the tension, some arrangement whereby

a temporary prosperity could be secured. Not only in justice to the natives who were relying on oft repeated promises to remedy the wrong, but above all for the sake of American prestige and the success of the high mission of the American government in the Philippines and for the sake of those Americans on whose efforts depended the final outcome of their country's experiment, it was imperative that some law be enacted which would make the path to success smoother.

With the acceptance of a compromise measure along the lines defined, it would have brought speedy relief and tangible results; it would, at that time, have restored harmony to the ranks of the Republican party and weakened the ranks of the "insurgents." At the same time it would have lessened the opposition to the President's program.

On the other hand the Island's trade would have been given a chance to expand. To receive any material benefits from the compromise, the influx of new capital for the development of the sugar industry along modern lines was necessary. The present miserable apologies for sugar mills, turning out low grades of sugar, could not continue without expensive alterations, as the market in the United States for this low grade product is limited to about 50,000 tons. To secure the advantages of free trade with a limitation of 400,000 tons meant 400,000 tons of 96 degree centrifugal sugars, or the product of modern mills, modern cultivation, brains and capital. To produce 400,000 tons of centrifugal sugars means a cash investment of $40,000,000 gold, which capitalized into paying stock companies would mean $100,000,000 of stock. Added to this would be $50,000,000 invested railroads, new transportation lines, new banks and the many allied industries which would spring into existence in the wake of the sugar development, the opening up of the immense mineral resources, the growth of the hemp industry and at the expiration of 15 or 20 years there would be over $200,000,000 of American capital represented in the Philippines. And then when the question was revived, conditions would be changed. The increase of sugar consumption in the United States, would be so great that the home industry could not cope with it, and then not only in justice to the islands but thanks to the pressure of the great capitalists interested, the lid would have to come off to stay off.

The proposed compromise was rejected by the administration leaders at that time, as they were confident of success and believed that the principles of honor and fair play as interpreted by them would prevail and the bill pass on its merits. But in this they proved over-confident. The bill went down to defeat, pigeonholed in a senate committee room.

Now two years later, with a presidential election at hand, with conditions practically unchanged, the Secretary of War has accepted the compromise he rejected two years ago. Not that he has lost sight of the justice of the previous tariff measure, but he finds that the pressure brought to bear by the great capitalists interested in opposing that measure is overpowering and that should he continue his hopeless struggle it would mean a continuation of the depression in the islands, and it is his desire to bring at least partial relief to the archipelago while the sentiment is favorable to such a course. True the former rejection of the compromise has cost the islands two years of unnecessary stagnation but this does not make its acceptance less welcome at this time.

This in effect is what the bill means. There will be no fight. It will not be necessary to give a long pull, a strong pull and a pull together by the merchants of Manila to make something come their way. All the efforts of Americans in the Philippines cannot prevail against the sentiment and opposition of their voting brethren in the Homeland, especially on a tariff matter on the eve of a presidential election.

The only point upon which Congress desires light at this stage is: "What effect will free trade have on the Insular revenues? Will the internal revenues be sufficient to meet the decrease in custom's receipts?"

The man to answer these questions intelligently is the man at the head of the Internal Revenue Bureau. The selection of Mr. Hord to appear before Congress is one which will commend itself to all having the welfare of the islands and the passing of the compromise measure at heart.

NECESSITY OF AN AMERICAN-FILIPINO CLUB

The success of the political program of the administration at Washington and the expansion of American trade in the Philippines would be immeasurably benefited by greater encouragement of a kindlier sentiment and feeling between the native and American businessmen. This appears to have been recognized by Taft in the early part of his administration but being inexperienced in the matter of dealing with an oriental people and having to contend with the prejudices that feature the aftermath of war between two peoples of directly opposite characteristics, his pronounced attitude on the question only added fuel to the flame of prejudice.

Without interruption on the part of outside and disinterested elements however the relationship between the Americans and Filipinow residing permanently in the Philippines have slowly but surely improved as their common interests developed and the understanding became more defined.

To further this desirable spirit there appears to be lacking a common ground where interests in common may be furthered by proper discussion and united action. This could, we believe, be supplied by an association or club along broad general lines where leaders of thought among both races might meet to further community interests and discuss political and commercial questions. This is the natural tendency of the brightest minds of both races in the Philippines and any avenue whereby the best results in better understanding and increased confidence may be secured should be welcomed and encouraged. The future of the islands will largely depend upon American initiative with the support, confidence and co-operation of the Filipino people. A club that would have for its purpose the promotion of the best interests of the two races along these lines would, we are certain, have the generous support and sympathy of every American and Filipino who has the advancement of the Filipino and the prosperity of the Islands at heart.

The presence in Manila of representative Filipinos from every section of the archipelago attending the assembly, conversant with the opportunities for development in their respective districts and alive to the interests of the people they represent and the opportunity such a club would afford the leading Filipinos and Americans of the capital an opportunity to get in touch with the sentiment, aims and ambitions of the people of the most remote parts of the islands, would suggest that there could be no time more favorable than the present to organize and make permanent this most desirable organization.

THE MANILA MERCHANTS' ASSOCIATION

The recent informal meeting of the Manila Merchants' Association was a great success from one point of view, but the attendance brought out prominently the one weak spot in the organization. The American community was well represented. There were a few Britishers, fewer Germans and one or maybe two natives present. One of these natives was the honorable alcalde of Manila. So long as the Manila Mechants' Association confines itself to its legitimate sphere of distributing information, folders and general promotion literature for the benefit of the islands, the absence of native support will not be noticed, but when it attempts to proposes legislation, suggest reforms and indorse candidates, its efforts would have greater results and carry more weight if the association was representative of the native community. Unless an attempt is made to reach the native element, secure native co-operation and give them an opportunity of expressing their views, the work of the Association had better be confined to certain well defined lines or it will follow the road of the defunct American Chamber of Commerce. Unless the interests of the different elements that go to make up the community are considered in the deliberations of the Association, sooner or later it will favor some project which will meet with the disapproval of the Philippine or other chambers of commerce, creating a breach which may never be bridged over.

WILLIAM DANBY, M.I.C.E., HONGKONG.

No one man in the Far East is better or more favorably known among all nationalities than is William Danby, M. I. C. E., the pioneer engineer and architect of Hongkong who paved the way for the remarkable development in engineering and construction that has marked the history of the East in the last half-century. Mr. Danby was born May 5th, 1842, and received his early education at the Leeds Grammar School. After taking a course at King's College, London, he was articled as a civil engineer to the municipal engineer of Leeds and later became assistant, receiving the appointment of borough engineer of Leeds. In 1869 he accepted the position of chief resident engineer under the late Sir Thomas Hawksley, F.R.S. (past president of the Institute of Engineers) in charge of the large Washburn Extension of the Leeds C. W. W., and remained in that capacity until 1873, when he received the appointment as Assistant to the Surveyor of Hongkong.

His first important work and which stands a monument of his splendid service, was the direction of the borings and the charge of the detailed surveys of the then projected Tytam Waterworks. From 1874 to 1879 he was in complete charge of all the new government work and surveys.

He resigned from the government service in February, 1879, to take up private practice and since that time has supervised much of the principal construction that has featured the growth of Hongkong and he is recognized as an authority on all questions pertaining to engineering and architecture in the Far East. Among the principal contracts carried out under his supervision were the sugar refineries of Hongkong and the docks.

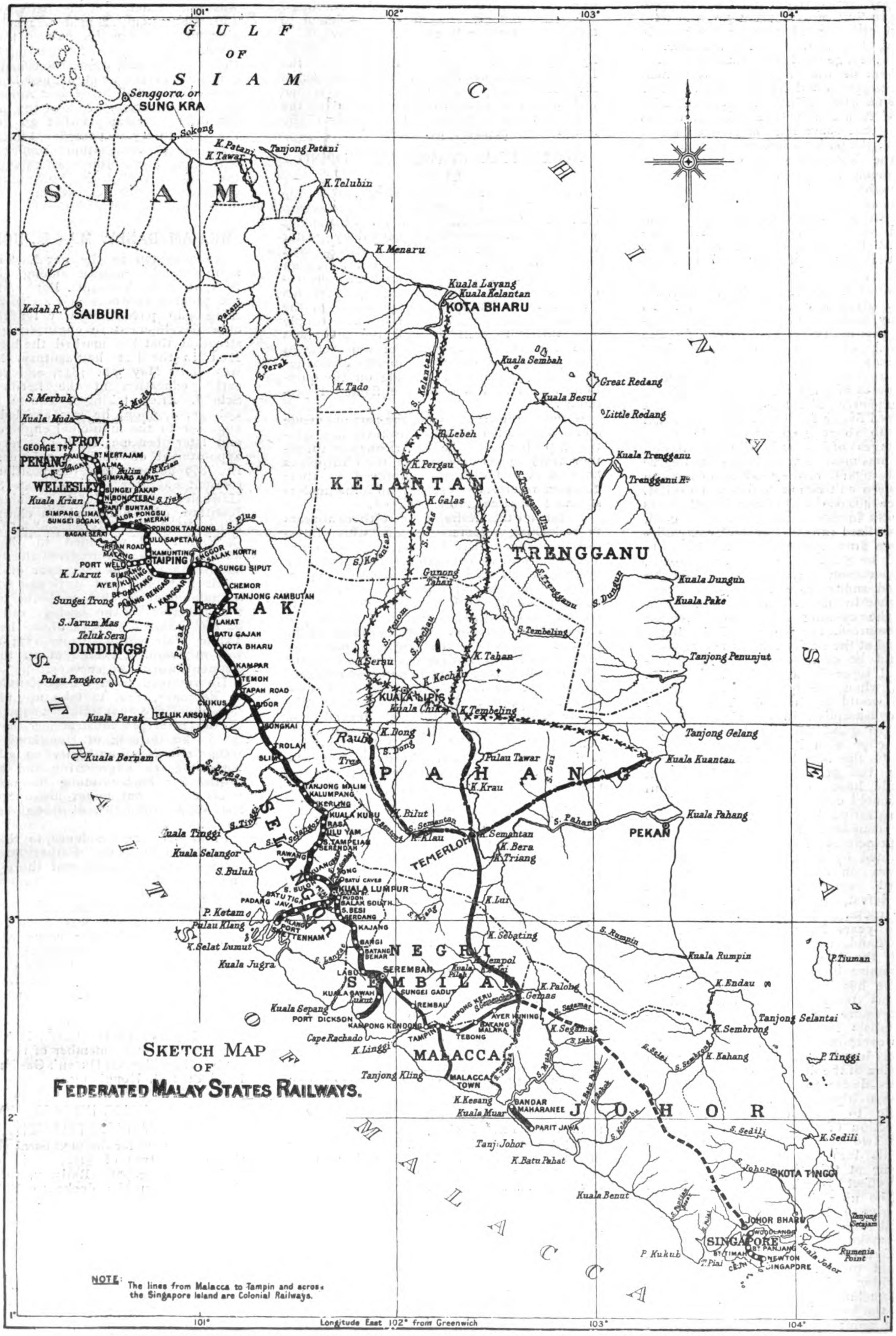
From his long residence in Hongkong he is looked upon as the "Father" of the colony by his many admirers and there is little in the history of this British outpost with which he is not conversant, having been identified personally with every stage of its development.

In May, 1878, he was elected lieutenant of the local volunteer corps and in Jan. 1882, received the appointment of Justice of the Peace. He represented the Chinese Government in the settlement of the Shameen Riot Claims at Canton, in August 1884. He was attacked by Chinese in the New Territory while on a geological expedition July 19, 1879. He is Past D.S.G.W., Hongkong and South China, and a member of the Hongkong Club. His address is Queen's Gardens, Queen's Road Central, Hongkong.

PROPOSED PUBLIC IMPROVEMENT IN THE STRAITS SETTLEMENTS

The estimates for the next fiscal year include the expenditure of $160,000 in connection with the Singapore Railway, to relay half the line from the docks to Bukit Timah with 80 pound steel replacing the 46 pound steel now in use. This has been considered necessary in order to carry the heavy granite to be used in the construction of the new works at the Tanjong Pagar. It will also make the line more desirable for passenger traffic in point of comfort.

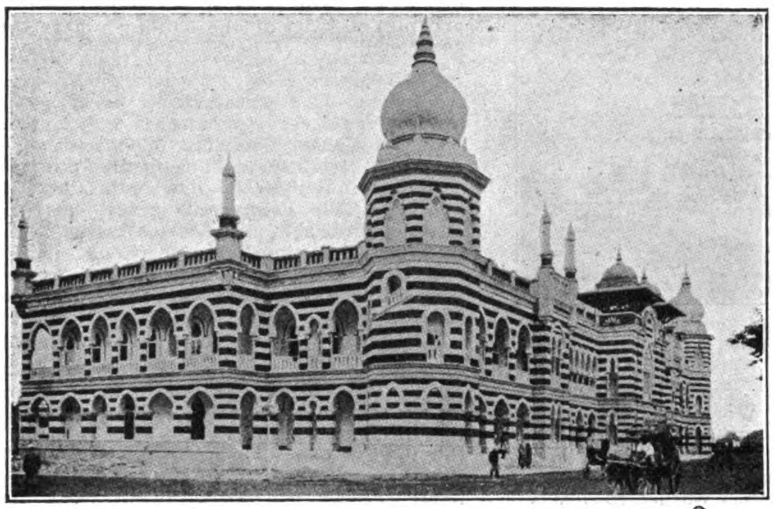
Provision has also been made for the construction of the Johore wagon ferry which will cost $240,000 and will be completed before the Johore railway is thrown open to traffic.



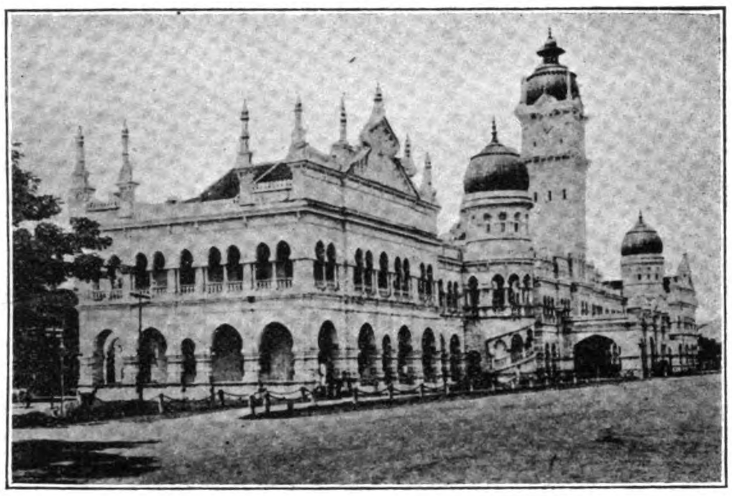
SKETCH MAP OF THE F. M. S. RAILWAYS FROM THE F. M. S. RAILWAYS ANNUAL REPORT.

THE FEDERATED MALAY STATES RAILWAYS

The history of the railways of the Federated Malay States is one full of interest, and the remarkable progress made in providing a system of rapid transit since the first rod was turned in 1881, demonstrates the remarkable energy of the pioneers of that region and that the rapid development of the inexhaustible resources which followed fully rewarded the enterprise and sacrifices made. The annual report by General Manager C. Edwin Spooner for the year 1906, recently published, showed 489 miles in operation and over 278 miles projected or being surveyed. In all during the year 1906 there was expended for new lines under construction and survey $2,707,269 30. The total revenue from the railway lines in operation for the year was $4,774,124.55; the operating expenditure was $2,991, 762.48 leaving a net profit of $1,782,362.07.

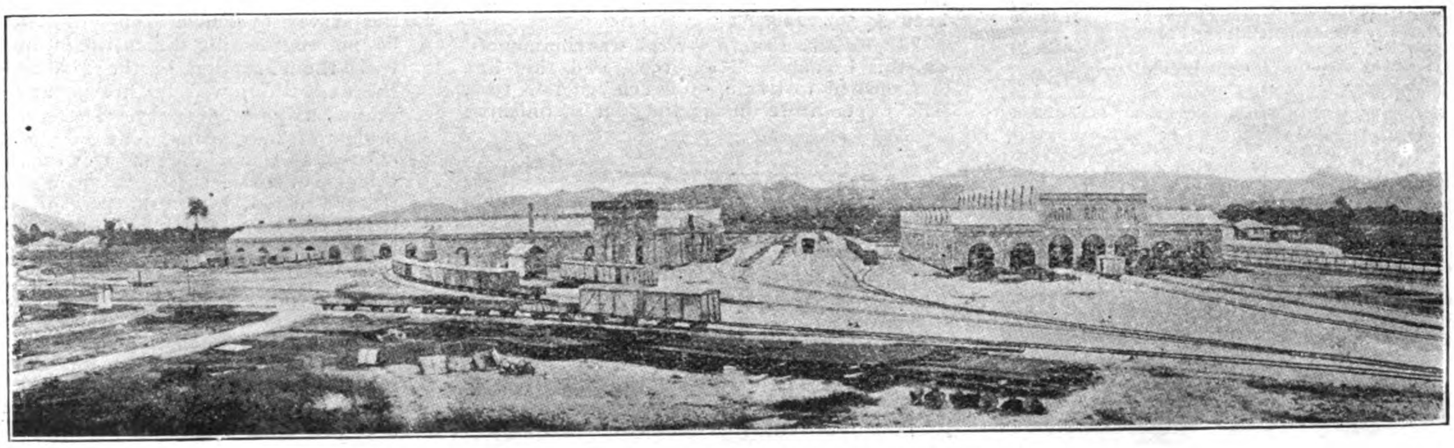


HEAD OFFICES OF THE F. M. S. RAILWAYS AT KUALA LUMPUR



THE F. M. S. GOVERNMENT OFFICES AT KUALA LUMPUR

The first line built was commenced in 1881 and connects Taiping and Port Weld, a distance of 8 miles and 6 chains. Taiping is the chief town of Larut and the headquarters are located there. The construction was of a difficult character owing to the swampy territory through which it was built. Large quantities of earth had to be transported from Taiping to build the embankment. It was finally completed and opened to traffic on June 1st, 1885.



F. M. S. RAILWAY WORKSHOPS AT KUALA LUMPUR, LOOKING NORTH

The second line was built from Taiping to Kamunting, a distance of 3 miles and 50 chains and was opened in May 1890. Then followed the extension from Kamunting to Ulu Sa'petang, a distance of 5 miles and 22 chains, opened to traffic in June 1892. In May, 1893, 16 miles of a road from Telok Anson to Tapah Road were opened to traffic and in September of the same year the balance of 1 mile and 12 chains was completed. Then followed great activity on the section now known as the Northern Division and the following lines were completed:

From Batu Gajah to Ipoh, 8 miles, 72 chains, October, 1893; Kota Bharu to Batu Gajah, 5 miles, 44 chains, April, 1894; Tapah Road to Talam, 7 miles, 17 chains, September, 1894; Talam to Kampar, 2 miles, 19 chains, March, 1895; Kampar to Kota Bharu, 8 miles, 48 chains, May, 1895; Ipoh to Tanjong Rambatan, 8 miles, 25 chains, November, 1896; Tanjong Rambutan to Chemor, 4 miles, 66 chains, July, 1897; Chemor to Sungei Siput, 7 miles, 72 chains, July, 1897; Sungei Siput to Enggor, 7 miles, 79 chains, July, 1898; Prai to Bukit Mertajam, 6 miles, 40 chains, July, 1899; Ulu Sa'petang to Pondok Tanjong, 3 miles, 48 chains, September, 1899; Krian River to Began Serai, 11 miles 8 chains, November, 1899; Bukit Mertajam to Nebong Tebal, 13 miles, 70 chains, Septem ber, 1900; Enggor to Kuala Kangsar, 5 miles, 34 chains, September, 1900; Perak Boundary to Tanjong Malim, 7 miles, November, 1900; Bagan Serai to Alor Pongsu, 4 miles, 68 chains, May, 1901; Kuala Kangsar, 6 miles, 26 chains, July, 1901; Alor Pongsu to Pondok Tanjong, 10 miles, 55 chains, February, 1902; Taiping to Bukit Gantang, 5 miles, 4 chains, May, 1902; Tapah Road to Bidor, 7 miles, 58 chains, May, 1902; Nebong Tebal to Krian River. 31 miles, May, 1902; Bukit Gantang, 7 miles, 36 chains, July, 1903; Bidor to Sungkai, 8 miles, 8 chains, July 1903; Slim River to Tanjong Malim, 13 miles, 51 chains, July, 1903; Sungkai to Slim River, 14 miles, 39 chains, August, 1903. This concludes the roads in the Northern Division up to last report and it may be seen what a complete network has been evolved.

On what is known as the Southern Division the first line opened was that between Kuala Lumpur, the capital of the F. M. S., and Klang, a distance of 21 miles, 40 chains, completed September, 1886. Then followed the line from Klang to Port Swettenham, a distance of 5 miles, 40 chains, completed in January, 1899. The line from Kuala Lumpur to Tanjong Malim, a distance of 62 miles, 80 chains, was completed in five consecutive sections as follows:

From Kuala Lumpur to Rawang, November, 1892, Rawang to Serendah, July 1893, Serendah to Kuala Kubu, October 1894, Kuala Kubu to Kalumpang, August 1900, and from Kalumpang to Tanjong Malim, November 1900. In June, 1893, a line 2 miles in length

was completed to Pudoh and from the latter point to Sungei Besi, a distance of 7 miles, in March 1895. In August the line from Sungei Besi to Kajang, a distance of 8 miles, 20 chains, was completed and the balance of the main lines and extensions were opened in the following order:

Kajang to Bangi, 6 miles, 40 chains, June, 1902; Bangi to Batang Benar, 5 miles, February, 1903; Batang Benar to Seremban, 17 miles, 23 chains, April, 1903; Batu Junction to Batu Road, 36 chains, February, 1905; Seremban to Tampin, 30 miles, 22 chains, July, 1905; Batu Road to Batu Caves, 4 miles, 65 chains, December, 1905; Tampin to Malacca Town, 21 miles, 10 chains, December, 1905; Tampin to Gemas, 32 miles, 35 chains, October, 1906.

It will be seen that the present system was the result of years of continued construction and that the system places the principal ports in close connection, with the leading industrial centers. The activity in this direction continues, as will be seen from the following excerpts taken from the last report on the construction carried on during the year 1906 and the surveys under way:

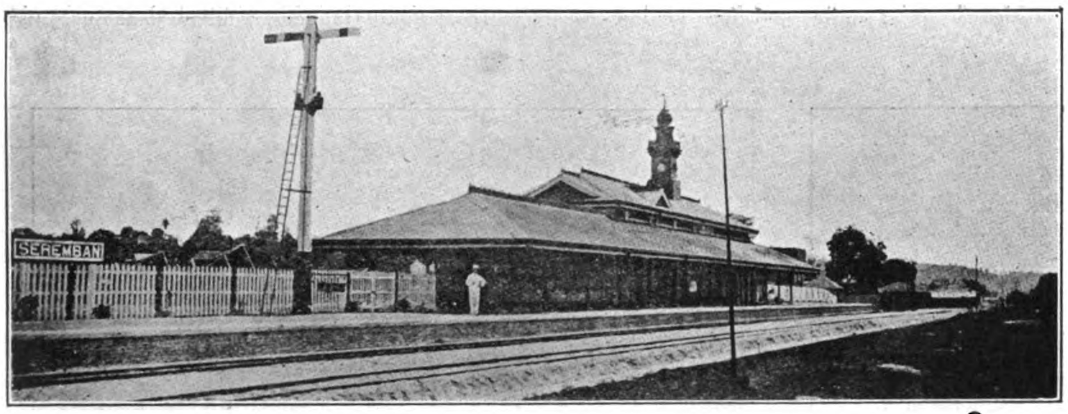
Construction.—The total expenditure during the year 1906 on construction and surveys of new lines in the Federated Malay States, Johore, and Malacca amounted to $3,924,728.39 distributed as follows:

Negri Sembilan Extension	$490,266.79
Malacca Branch	116,942.81
Johore State Railway	3,221,761.81
Gemas-Kuala Semantan Permanent Survey	60,494.53
Kuala Semantan to Kuala Lipis trial survey	6,665 13
Survey via Benton for same line	11,047.55
Kuala to Kuantan via Bentong survey	11,183.78
Light Railway Permanent Survey Tronoh to Ipoh	4,796.74
Light Railway Survey Temoh to Chenderiang	1,569.55
Total	$3,924,728.39

The sum of $380,003.69 was spent by the colony during the year on the construction of the extension of the Singapore Railway to Pasir Panjang, bringing the total expenditure on this extension up to $1,409,289.

Negri Sembilan Extension—This extension is 63.33 miles in length and forms the last length of the main trunk line, running South of the Johore frontier. Work was commenced in June 1903. On the 15th of July, 1905, 30 miles 22 chains were opened to traffic and on the 1st of October, 1906, a further length of 33 miles 45 chains was opened to Gemas Station. The total expenditure from the commencement of this 62 miles 67 chains has been $5,593,222.33.

The Malacca Branch.—Work was commenced on this branch in May, 1904, and this line was opened to traffic on December 1st, 1905. The expenditure during the year in finishing off amounted to $117,272.41 making a total cost of the 21.1 miles $1,719,712.03.



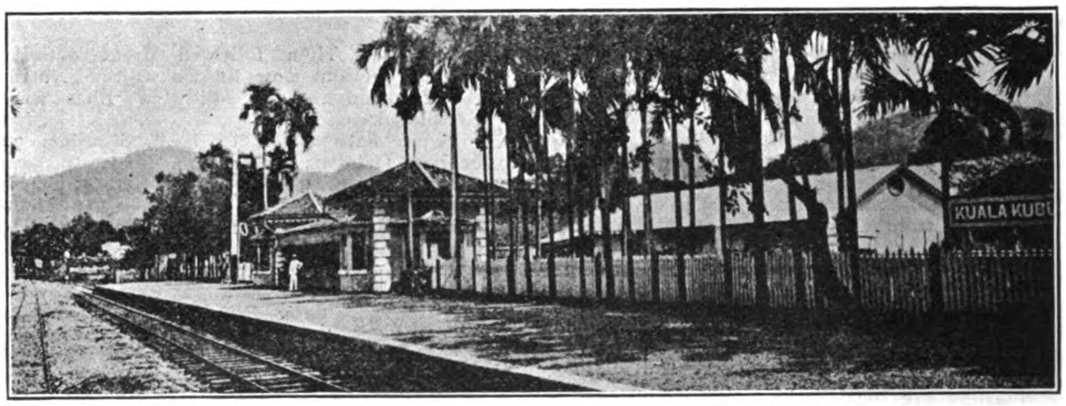
A SECOND CLASS STATION ON THE F. M. S. RAILWAY SYSTEM

Johore State Railway.—Up to the close of 1906 a sum of $4,286,259.37 had been spent, of which the sum of $3,221,761.51 was spent during the year under review. The work done amounted to 110.5 miles of jungle cleared, 3,778,189 cubic yards of earthwork or well over a third of the total quantity, 13 bridges and 131 culverts were completed and 13 bridges and 55 culverts are in progress. The permanent way has been linked in for 25.5 miles-viz., 10 at Gemas end and 15.5 miles at Johore Bahru—not counting lengths of sidings. The telegraph line for 70 miles and the majority of the buildings have been completed.

SURVEYS.

Gemas-Kuala Semantan Permanent Survey.—The trial surveys made this line to be 77 miles in length by one route and 79 by another, The permanent survey has been completed for 48 miles from Gemas, and it is hoped that the total length of the line will be reduced to 70 miles. The expenditure during the year on this work was $60,494.53.

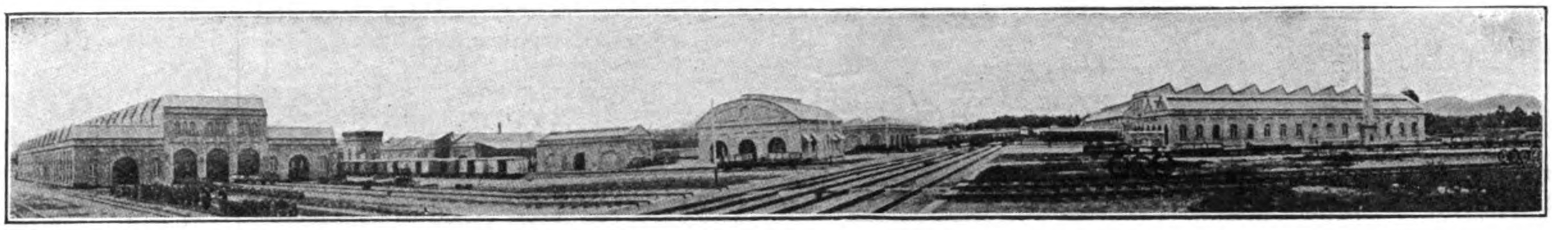
Kuala Semantan to Kuala Lipis (stopping at Kuala Tembeling) Trial Survey.—This survey starts from the station at Temerloh at Kuala Semantan and proceeds generally in a direction due North to Kuala Tembeling, the total distance being 46.93 miles. The line keeps on the right bank of the Pahang River the whole way, drawing near to it at the 22nd, 38th and 42nd miles: from here it hugs the river close to the end of the survey at Kuala Tembeling: there will be no engineering difficulties of importance, with the exception of the 41st mile, where the excavation will be heavy and a short tunnel may be necessary. There will be one bridge of four spans, one of 3 spans and one of 2 spans of 100 feet each; and 5 bridges of 100 feet single spans. The line, if constructed, will form part of the main trunk railway, starting from Gemas and running to the east of the main central range.



THIRD CLASS STATION, F. M. S. RAILWAY SYSTEM

Trial Survey, Kuala Semantan to Kuala Lipis via Bentong.—This survey was completed in July, 1906. The total distance from the 49th mile post on the Pahang trunk road to Kuala Semantan is 58.55 miles. There will be no engineering difficulties, and the bridging would probably be five of 100 feet span each and one with three spans of 100 feet. It is not possible to get nearer than 8 miles of Bentong by this line, and as the trial survey from Kuala Semantan to Kuala Tembeling and the exploration from that place Northwards have proved that the main trunk line should not take the route under notice, but go East of Gunong Tahan via Kuala Tembelin, Bentong will have to be reached by a branch line from Kuala Sementan. The total cost of the survey amounted to $18,184.50.

TYPE OF FIRST CLASS COACH USED ON THE F. M. S. RAILWAY SYSTEM. LENGTH, 56 FEET, 11 INCHES; HEIGHT, 11 FEET 7.88 INCHES AND WIDTH 8 FEET 9.5 INCHES.



CENTRAL RAILWAY WORKSHOPS, F. M. S. RAILWAYS, KUALA LUMPUR, LOOKING WEST

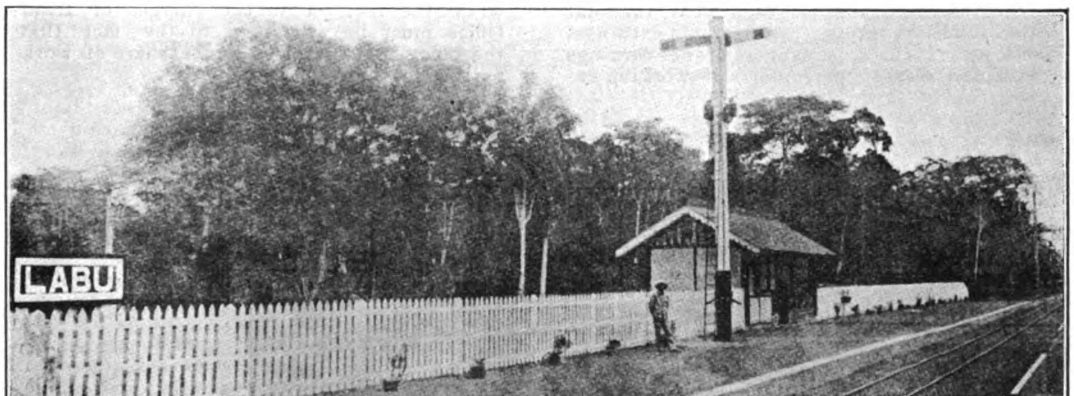
Kuala Semantan to Kuantan, Trial Survey—This railway, if ever made, will form a branch line from the main line to the sea-port town of Kuantan, and will be 76.70 miles in length. This trial survey was completed at a total cost of $16,032.85. The Pahang River would have to be crossed by a bridge of 6 spans of 150 feet each. There will be 16 bridges of two spans of 100 feet each, one of two spans of 100 feet each and a bridge across the Kuantan River of 4 spans of 150 feet each. There will also be 1,250 feet of tunneling. The approximate cost of constructing the line, which would have no curve sharper than 3° or grade steeper than 1 in 100 would be $8,277,444 or $107,920 a mile.

Permanent Survey, Ipoh to Tronoh.—This was completed in February, 1906, the total cost being $7,329,58, but it has since been found necessary to deviate the alignment in places and to continue the line from Menglembu into Ipoh and not duplicate the existing main line from Ipoh to Simpana Ampat. The work of constructing this line, which will be 15 miles 15 chains in length, has since commenced. The comparative low cost of the survey is due to the line passing through open mining country devoid of forest.

Permanent Survey, Temoh to Chenderiang,—The survey was completed in March, 1906, and cost $4,028.45. The total length of the railway will be 6 miles and 28 chains. A motor bus service, running in connection with trains, is expected to prove the advisability or otherwise of constructing a branch railway between these places.

Survey of Open Lines.—A sum of 4,000 was paid during the year to the Revenue Survey Department, Perak, for a survey of Railway reserves; several station reserves in the Southern Division were surveyed, and the total sum paid for the work was $4,730.

Under the head of Special Service Works the report contains the details of expenditure for the substituting of heavier steel in the

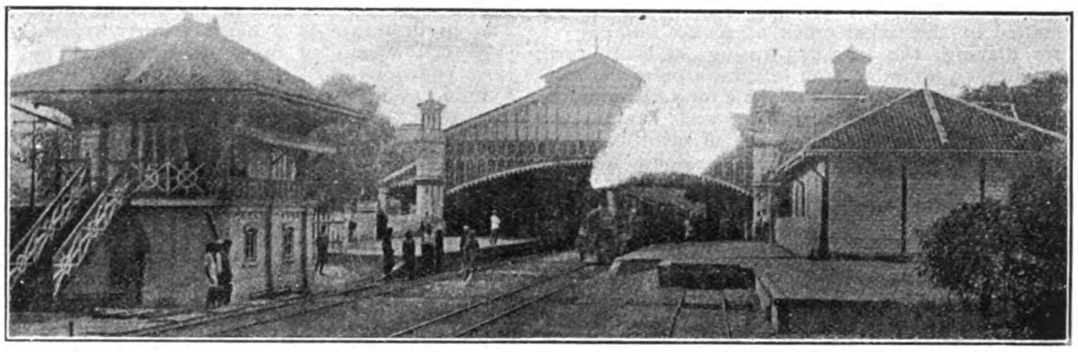


FOURTH CLASS STATION, F. M. S. RAILWAY SYSTEM

two divisions, which work is continuing, and for the construction of workshops and a terminal station at Penang underway as well as improvements to different cuts to prevent land slides.

Relaying Northern Division.—It was decided to take up the 46.25 pound rails between Ulu Sepatang and Taiping and relay with 60 pounp rails thus providing a continuous length of 60 pound rails from Prai to Ipoh, a distance of 112 miles 14 chains. The length relaid was 7 miles 46 chains and, with the exception of additional ballasting, was completed. The 46.25 pound rails between Ipoh and Tapah Road, a distance of 32.5 miles, are to be replaced by 80 pound steel and provision for 12 miles 34 chains of this length was made in the 1906 estimates. The rails arrived from England in October, 1906, and were laid for 12 miles 6 chains, but the work was not completed. The expenditure during the year on the relaying of the Northern Division amounted to $214,776.02.

Relaying the Southern Division.—The 46.25 pound rails in the Southern Division between Kuala Kubu and Sungei Besi, a distance of 47 miles 24 chains, also between Batu Junction nd the Central Workshops, a length of 76 chains, making a total length of 49 miles 20 chains, are to be replaced by 80 pound gails. Provision for 11.18 miles was made in the



FIRST CLASS STATION OF THE F. M. S. RAILWAY SYSTEM

1906 estimates and this length was relaid, but the work was not fully completed for an expenditure of $214,776.02.

Central Workshops.—A sum of $196,515.44 was spent on these shops during the year, making a total expenditure to December 31, 1906, of $991,440.83. The transfer from the old shops at Kuala Lumpur, Ipoh and Taiping commenced in May and by the end of August was completed, when all the machines were running in their positions. It having developed that the carriage and wagon shops were too small it was arranged to enlarge them on the savings of the original estimat e also to provide more shed room for stores and materials and other minor works found necessary.

Penang Terminal Station and Offices.—The progress of this work I regret to report has been slow. The building was brought up to roof level and the expenditure amounted to $68,320.64 or a total since commencement of $137,993.59.

Improvements Pass Section.—During 1905 a sum of $26.597 was spent on special work in rectifying the damage caused by slips and washouts, chargeable to revenue account. During 1906 a sum of $47,361.62 was spent in improvements such as realignmeut, entailing heavy cutting in rock and earth and masonry work. This expenditure was charged to capital account and there has been no trouble with slides or washouts since these improvements were completed.

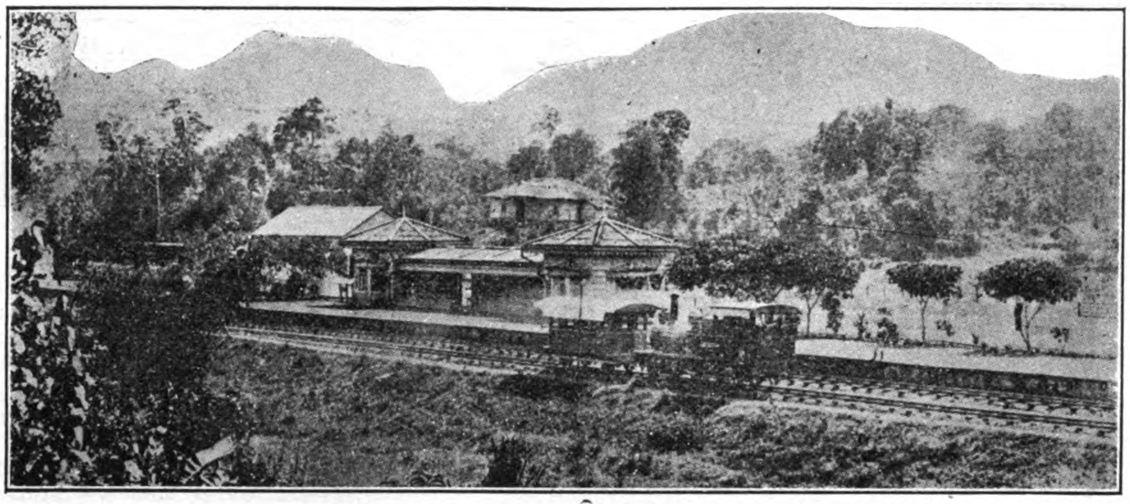
Krian River Bridge.—The abutment for the extra 100 feet span was completed at a cost of $8,607.08 but the superstructure has not yet arrived from England, the indent for which was sent in January, 1905.

On the 31st of December, 1906, the rolling stock of the system comprised 66 engines, 153 bogie passenger coaches, 55 four-wheeled coaches, 1,572 good cars. In addition seven engines of a new type weighing 75 tons 6 cwt. arrived early in 1907 and were put in commission.

Telegraphs and Interlocking Electric Signal Block System—Six new telegraph offices were opened during the year making in all 93. The length of railway telegraph, telephone and bell wires was increased from 793.75 miles to 861.75 miles and an additional 82 5 miles of postal telegraph wires were strung during the year 1906 on the railway poles, making in all 944 miles.

Apparatus.—The interlocking and electric block signalling apparatus for controlling trains in the neighborhood of Kuala Lumpur were kept in good repair. Complete interlocking plants were installed at Sereban, Tampin, and Tapah Road, but not brought into use at Tampin and Tapah Road. Apparatus for locking and protecting gates were installed at all the street level crossings at Kuala Lumpur and put in use.

Electric Lighting Plants.—The 115 volt lighting plant in Kuala Lumpur worked without a failure up to September when it was transferred to Port Swettenham to replace



AN ATTRACTIVE ROADSIDE STATION ON THE F. M. S. RAILWAY SYSTEM

the 110 volt plant there and current was then obtained from the Public Works Department at a pressure of 230 volts for lighting the passenger station and goods yards, Kuala Lumpur. This necessitated replacing all inside wires, lamps and switches with others suitable for the increased voltage. The electric lighting worked very satisfactorily at Port Swettenham throughout the year and extra wharf lights were provided. An electric motor was installed in the ticket office at Kuala Lumpur for driving the ticket printing and other machines. Tubular iron telegraph poles were replaced by old 46.25 pound rails for a distance of 89 miles between Seremban and Tanjong Malim and a very large amount of reconstruction work was done at Perak. Some idea of the enormous traffic of the road may be had from the fact that during the year 1906, 6,171,596 passengers traveled over the system as well as 589, 580 tons of freight not including 98,973 head of cattle.

In closing his report for the year 1906 General Manager Spooner writes "At the present moment the Federated Malay States Railways have the heaviest engines and rails and largest passenger carriages to be found on any metre railway in the world and I can confidently state that this departure has in every way proved successful."

In the history of government ownership and operation of railroads there is no instance where it has passed the experimental stage and met with greater success than the Federated Malay States Railways. The total investment to the end of 1906 was $41.275,005.85 and the net profit for the year was $1,572,337.51 or 3.81 %. Together with the margin of profit the people of the States have the advantage of very reasonable rates in both the passenger and freight tariff. The passenger rates follow: First Class, 6 cents; second class, 4 cents and third class 2 cents a mile. These prices are in silver so that the natives have the advantage over many countries boasting greater advancement of having a one cent gold a mile rate.

The same may be said of the freight rates. The highest rate is 2 cents (silver) a pikul (139 lbs.) a mile of first class freight. The rates run down to .25 cents (silver) a pikul, a mile, as follows:

Second Class Freight, 1.5 cents a pikul a mile; third class, one cent a pikul a mile; fourth class, .75 cents a pikul a mile; fifth class, .5 cents a pikul a mile; sixth class, .25 cents a pikul a mile. These values are in silver.

The illustrations accompanying this sketch were taken from the annual report of the Federated Malay States Railways for 1906.

RAILWAYS OF SIAM

The Siam *Free Press* gives the following review of the tenth annual report of the Royal State Railways of Siam for the last fiscal year and prepared by Mr. L. Weiler, director general of that department:

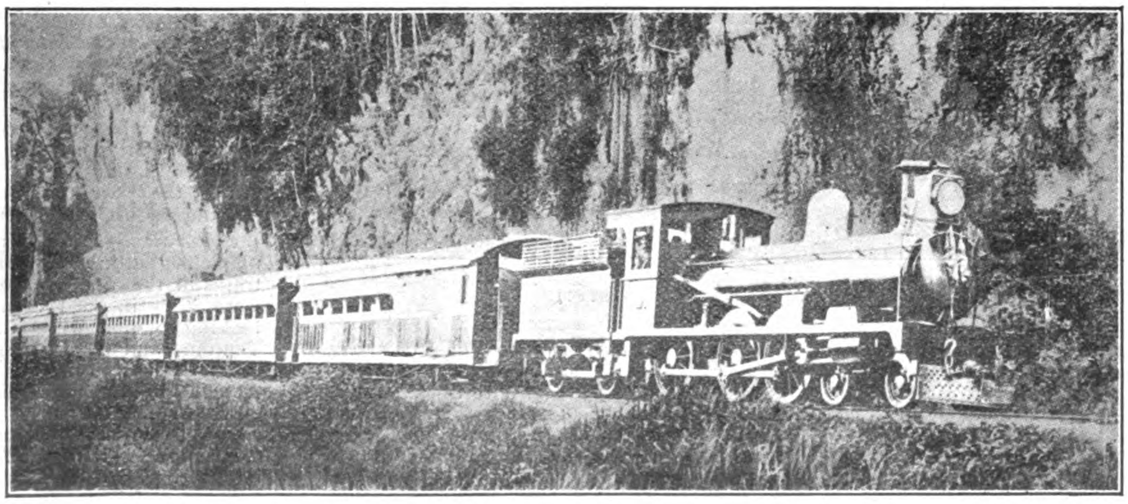
It contains a lot of interesting facts and figures concerning the progress of the work. Page 1 gives an excellent map of the railways in the Kingdom of Siam, and page 2 a diagram, showing for each year, the total capital outlay, gross earnings, net earnings, working expenses, percentage of net earnings to capital outlay, percentage of working expenses to gross earnings and open mileage up to the 31st March 1907. The total length of line under traffic has remained unaltered during the year 125 that is the 423.79 km railways of standard gauge (Korat and North line) and 131.05 km railways of 1 m gauge (Petchaburi Line).

Further openings will take place in the course of this year viz: 64 kim on the Eastern Line (Bangkok-Petriew) and 128 kim on the North line (Paknampoh-Pilsanuloke). The result of the year's working has been most satisfactory. The gross receipts for 125 were the highest ever recorded on the Railway.

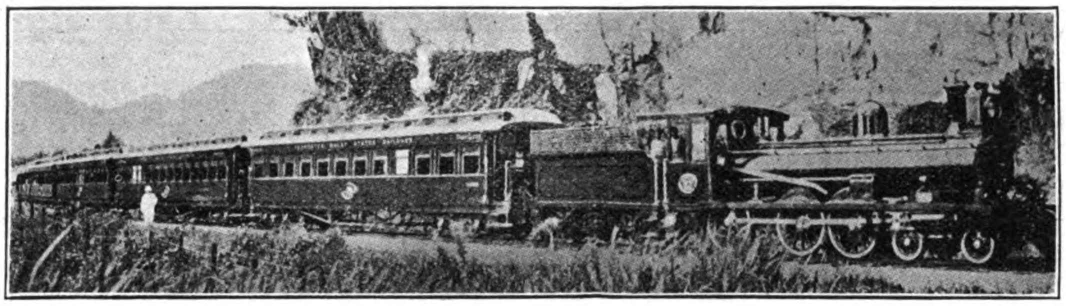
After deducting ten per cent of the net earnings for the renovation fund, the clear profit on original cost including additional accommodation to March 31st 1907 amounts to.

	Ticals Year 125	Percentage Year 125	Year 124
for Korat and North line	1530905	5.64	5.10
for Petchaburi	480180	5.92	5.23
" all lines	2011085	5.70	5.13

There is a satisfactory reduction in the Ways and Works and Locomotive Department as regards the percentage of expenditure to gross receipts. The increase in Traffic charges is accountable to the expenses incurred for establishing a force of watchmen since the abolition of the Railway Police Department, while the increase in the charges of Head Office must be attributed to the fact that the office partook of a larger share of work for traffic than in former years.



LIMESTONE CLIFFS, KINTA, F. M. S.



F. M. S. RAILWAY MAIL TRAIN ON THE F. M. S. RAILWAY SYSTEM.

REMARKABLE FINANCIAL HISTORY OF THE GOVERNMENT OF THE FEDERATED MALAY STATES.

The Manual of Statistics Relating to the Federated States, which gives an interesting *resumé* of the financial history of the States for the last 30 years, was recently issued from the government printing bureau at Kuala Lumpur and was subjected to the following comment by the *Pinang Gazette* and *Straits Chronicle:*

"Besides miscellaneous information relating to the census, meteorology, mining, and agriculture, details are given of the revenue and expenditure in the various States and the trade returns for the last thirty years. It is, in fact, a record, and a very brilliant one too, of the rise of the Federated Malay States under the administration of British officers. The 'Manual' contains no picturesque or poetical phrases to describe the history of these States: what it does is to give an account in a tabulated form of the present condition of the Federated Malay States as compared with previous years. Incidentally, it may be stated that only three decades ago—in 1876—the revenue of these States, excluding Pahang, was $560,997, and the expenditure exceeded this sum by $24,212. In the following year, the revenue was $637,432, and the deficit turned into an excess of $5,293 over the expenditure. Since then, there has been no looking back and the surpluses have steadily increased. In 1889, when Pahang became one of the protectorates, there was a surplus of $921,992, on a revenue of $5,013,000, to which Pahang only contributed $30,390, while the expenditure in this State in the same year was $142,620,—the difference being made up by the other States. This drain on the general revenue of the other States has continued ever since, but in gradually decreasing proportion subject to slight fluctuations, for we find that in 1906 the revenue of Pahang was $650,718, and the expenditure $1,434,353, while the total indebtedness to Perak and Selangor was $5,941,003.46. In the previous year the total revenue of all the States was nearly 24 million dollars, and showed a surplus of close on three and a quarter millions over the expenditure. Last year it was about 19 million dollars, leaving a surplus of over 8¼ millions.

"The public debt is defined by one little, but eloquent, word of three letters—*Nil*. But this does not exhaust the financial situation. In the statement of assets and liabilities on the 1st January, 1907, there was a net excess of assets of more than 36½ million dollars as compared with over 27⅓ millions on the same date of the previous year. Further, the whole cost of providing the machinery of the administration has been met out of current revenue.

"There have been 1,480 miles of metalled cart roads constructed in the F.M.S. in 1906—an increase of 210¾ miles over the figures for the previous year.

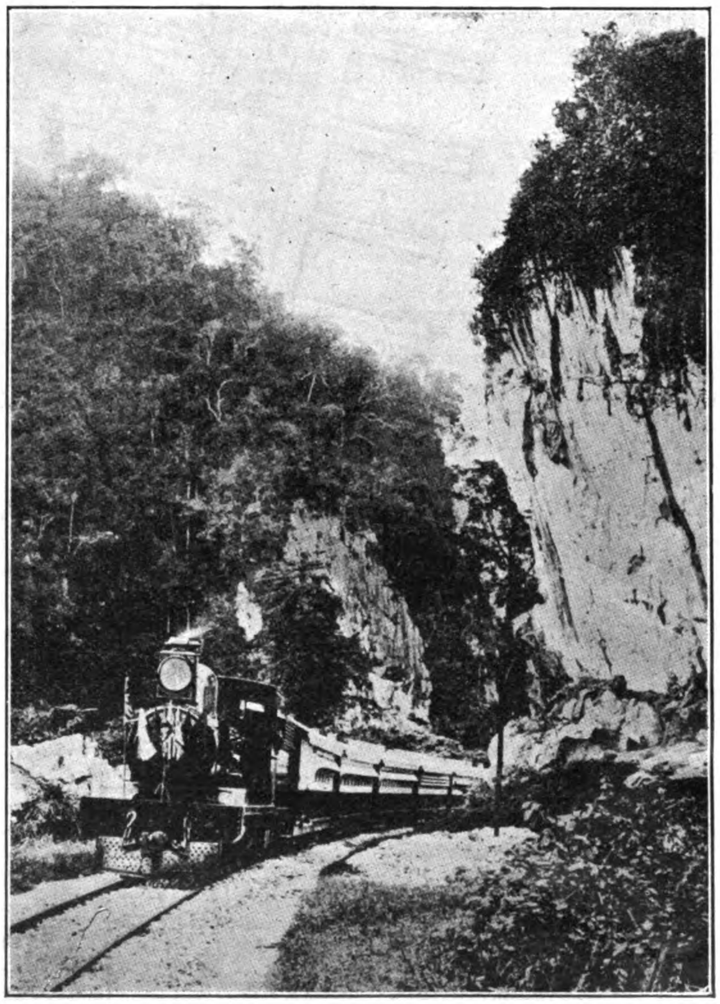
"Nearly 429 miles of railway have been laid at a capital expenditure of a little over 41¼ million dollars—every dollar being provided out of revenue—and the mileage under construction on 31st December last was 120½ miles. The total expenditure for the railway (24 miles) in Province Wellesley on the capital account at the beginning of this year was $2,247,235.69, and in Penang (including the Steam Ferries) $578,200.15. The net earnings of the whole Railway Administration were $1,572,337, being a profit of 3.81 per cent on the capital.

"The first revenue from Posts and Telegraphs was collected in 1880, when Perak contributed $206, and Selangor, $27. Selangor appears to have had no revenue from this source during the next two years, but made up for this lapse with $465 in 1883, when Perak's share was $552. The following year saw a big jump to $3,538 for Perak, while Selangor fell to $403, and the Negri Sembilan, contributing for the first time, paid $357 to the total, which amounted to $4,298. Pahang's first revenue on this account was added to that of the other States in 1899, and the gross total was $26,207. This rose to $317,639 in 1904, but, strange to say, fell short of this total by $25,612 in 1905 and then rose to $437,416 last year. It would be interesting to know the cause of the sudden decline in 1905, and the remarkable increase in 1906 of $119,847 over the figures for 1904.

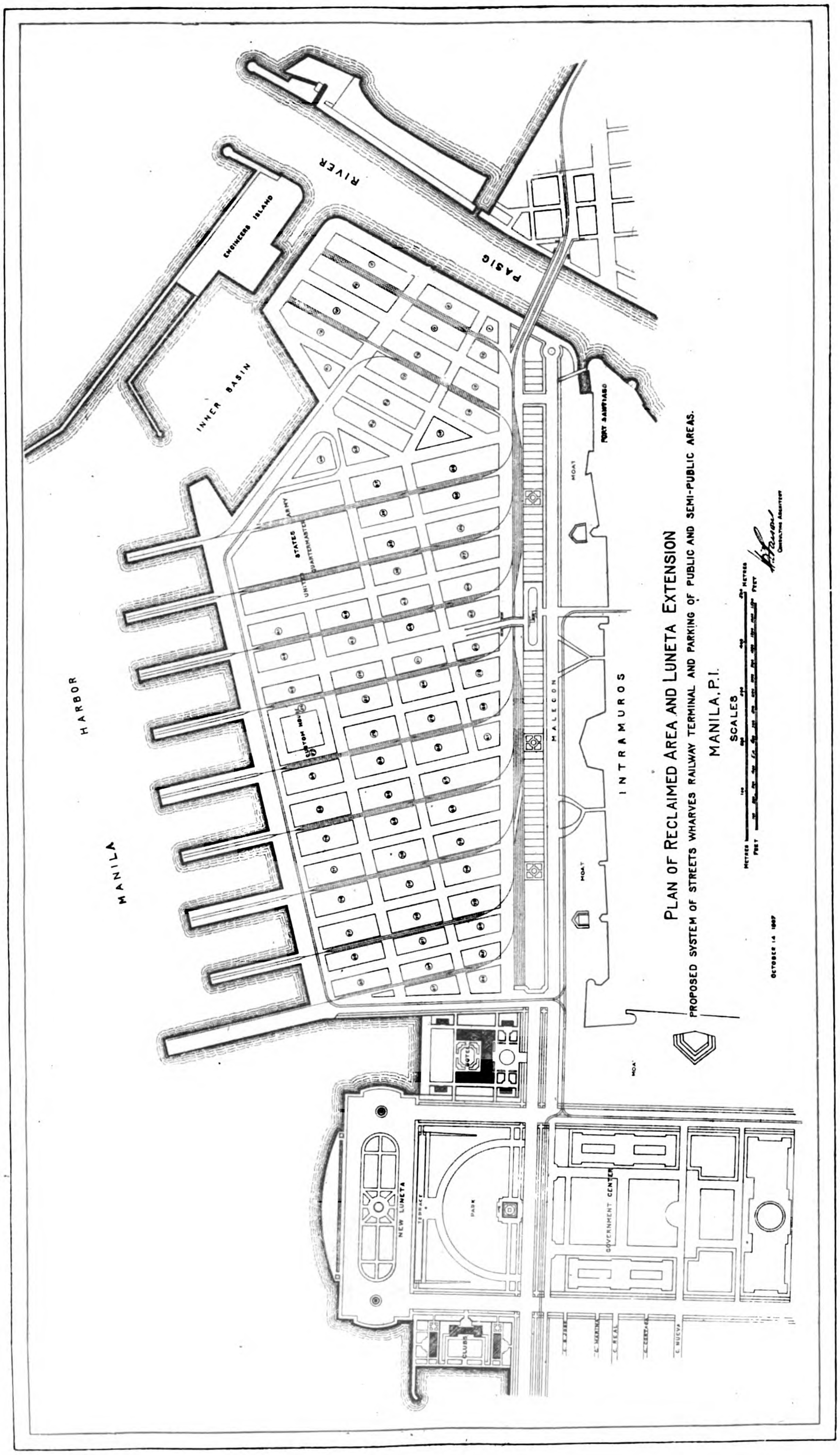
"In 1878 the land revenue of Perak was $10,998, and that of Selangor, $1,326. Six years later (1884), the amounts rose to $48,535 and $30,905 respectively. The revenue from the same source in the Negri Sembilan, which was mentioned for the first time in this year, was $15,467. The total land revenue for all the States, was last year $1,038,759, for which, no doubt, the boom in rubber planting was mainly responsible.

"The forest revenue, which in 1900 was nearly a quarter of a million dollars, included a share of the opium duty. In 1903, when the latter was excluded from the forest revenue account, the forests yielded nearly $378,000, and last year $635,968.

"The land sales, which prior to 1901 were included in the land revenue, and amounted to $137,500 in that year, rose another $80,000 in the following year, fell gradually to $191,307 in 1905, but jumped up to $373,956 last year."

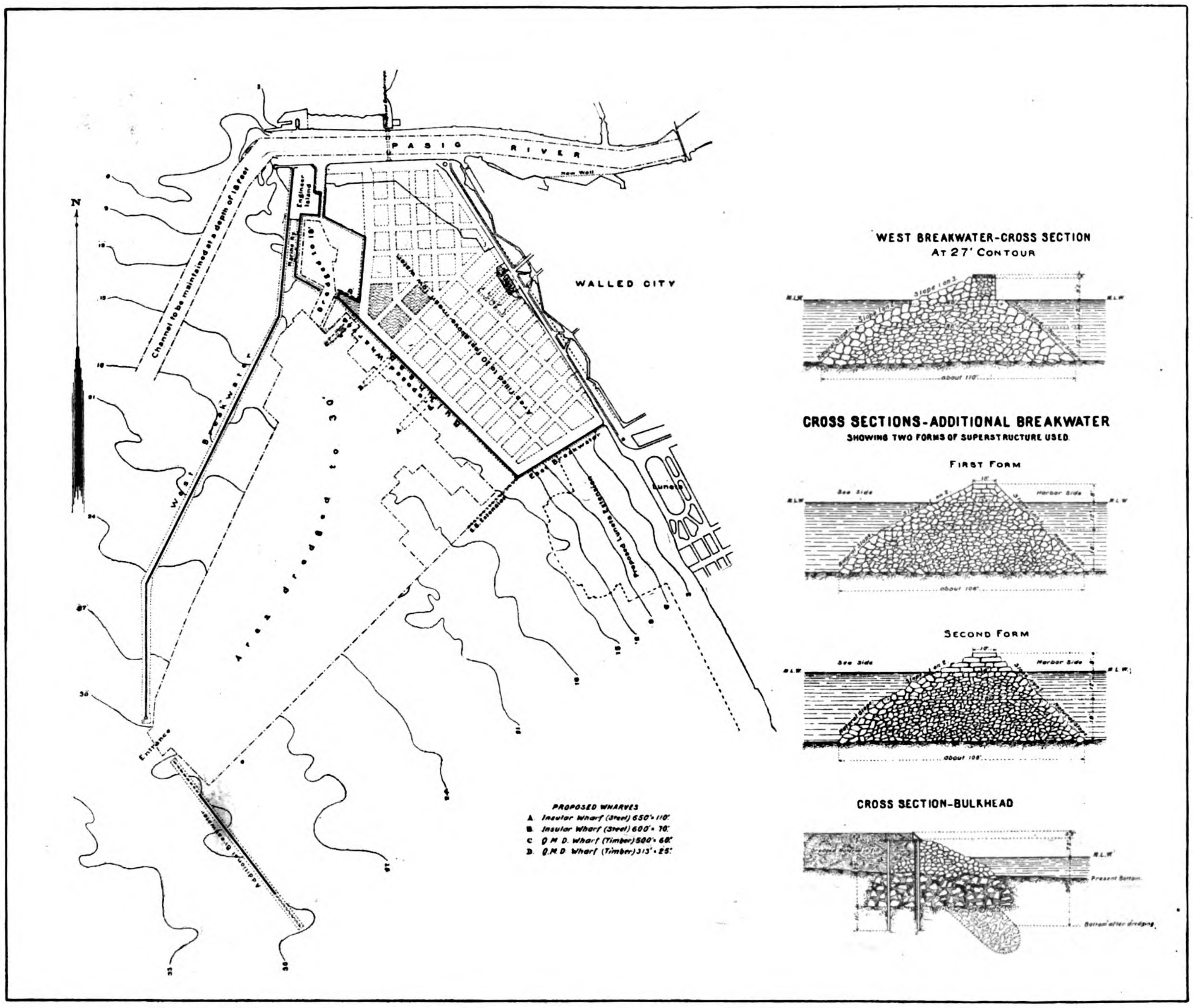


RAILWAY CUT, LIMESTONE CLIFFS, KINTA, F. M. S.


PLAN OF RECLAIMED AREA AND LUNETA EXTENSION
PROPOSED SYSTEM OF STREETS WHARVES RAILWAY TERMINAL AND PARKING OF PUBLIC AND SEMI-PUBLIC AREAS.
MANILA, P.I.
SCALES
METRES
FEET
OCTOBER 14 1907
MANILA
HARBOR
PASIG
RIVER
ENGINEERS ISLAND
INNER BASIN
FORT SANTIAGO
MOAT
MALECON
INTRAMUROS
UNITED STATES
ARMY
QUARTERMASTER
NEW LUNETA
PARK
GOVERNMENT CENTER
CLUBS

THE NEW PORT OF MANILA AND LUNETA EXTENSION

Slowly but surely the gigantic task of providing Manila with a most modern port, sufficiently large to handle her commerce expeditiously and cheaply is nearing completion. Some idea of the energy expended in this work may be gathered by the following figures and the illustrations that accompany this article.



ORIGINAL GENERAL PLAN OF AMERICAN PROJECT FOR NEW HARBOR WITH BREAKWATER CROSS SECTION.

The area of the fill of the New Port of Manila is 191.4 acres and the area of harbor dredged to date is 384.7 acres. The amount of material in all for the harbor fill, the Luneta Extension and the moats reaches 7,940,500 cubic yards.

The West breakwater two-thirds of which was constructed by the Spanish government is 3,000 feet long and required 259,000 tons of rip-rap, 10,230 cubic yards of masonry, 4,000 cubic yards of concrete coping with 825 cubic yards for the lighthouse at the end.

The South Breakwater which is 3,000 feet long required 485,000 tons of rip-rap.

The bulkheads and retaining walls of the first harbor fill required 228,000 tons of rip-rap and 5000 lineal feet of pile and timber bulkhead.

The harbor is divided into the outer basin, which will be kept dredged to a uniform depth of 30 feet, and the inner basin which has a depth of 18 feet below low water.

The Pasig River improvements which come under the direction of the Division of Port Works include the maintenance of a channel in the river from the Bridge of Spain 18 feet in depth and from the Bridge of Spain up the river to Laguna de Bay a channel 6 feet in depth. On this work alone three dredges have been in continuous operation and 3,310,00 cubic yards removed from the mouth of the river and bar and 266,000 cubic yards from the channel above the Bridge of Spain. This work has kept the river in splendid condition for the Laguna de Bay service.

The contract for the new port and harbor was let to the Atlantic, Gulf and Pacific Co. and the greatest degree of success has attended the accomplishment of this gigantic task since the work commenced.

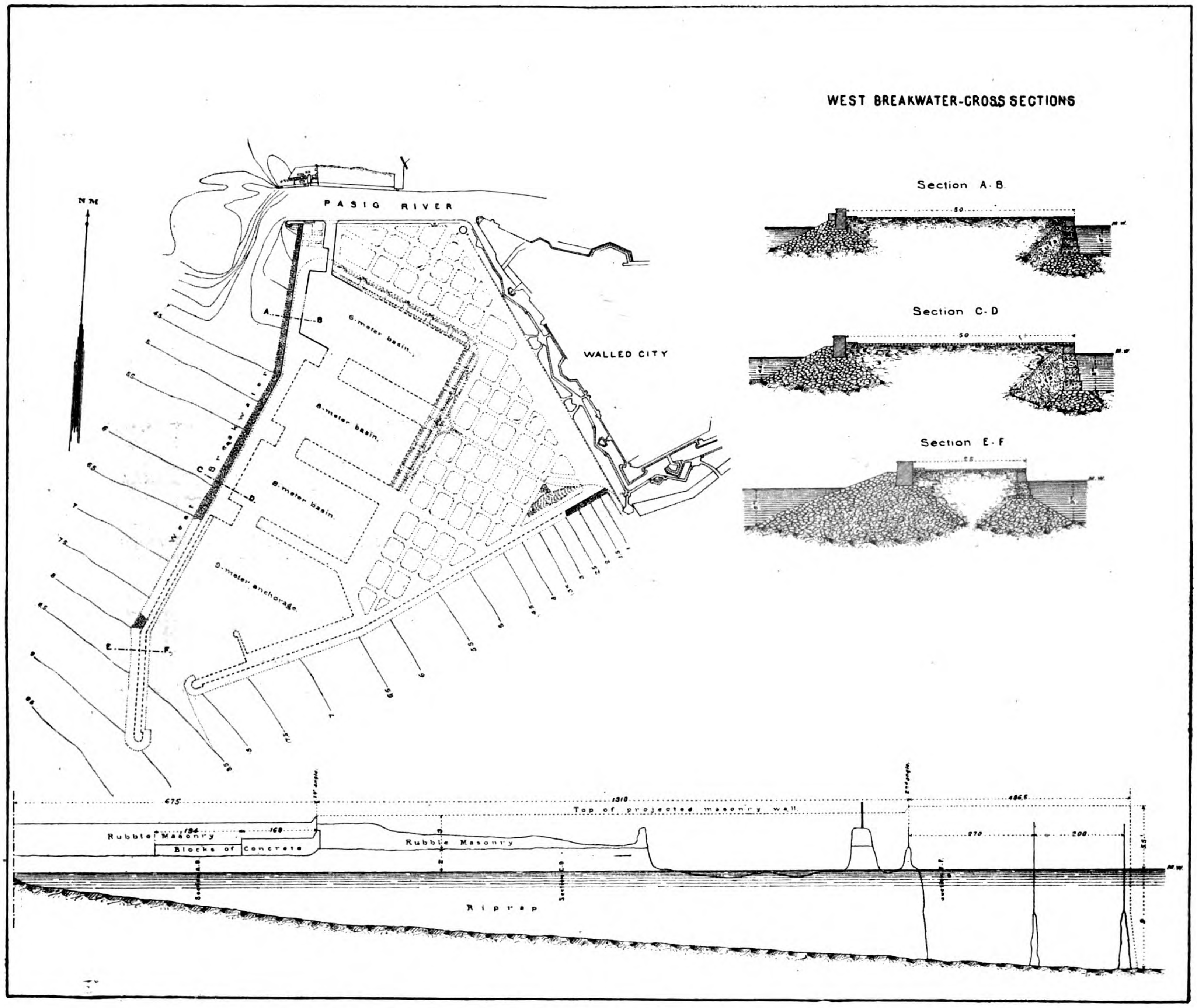
The work on the Pasig improvements is directly under the supervision and direction of the Division of Port Works.

The entire work of harbor improvement is under the supervision of the Bureau of Navigation and directly under the Division of Port Works of which Engineer H. C. De-Lano is chief.

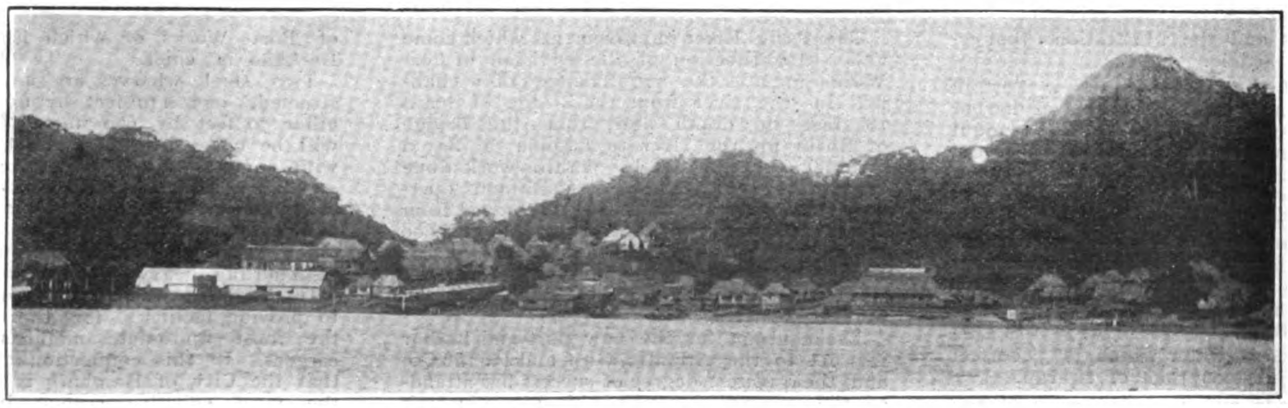
Two steel wharves are now being constructed, one 110 feet by 650 feet and the other 70 feet by 600 feet. These wharves will be covered with steel sheds and fitted with railroad tracks sunk into the floor so as not to interfere with the use of hand trucks or carts.

A forty ton crane will be placed at the outer end of the large wharf for the purpose of handling heavy machinery.

In the design of these wharves it was aimed to provide facilities for the installation of the most up-to-date methods of handling cargoes. In this connection it might be said that the City of Hamburg is credited with the most effective system in the world. Briefly this system is one of a bonded area



GENERAL PLAN OF SPANISH PROJECT OF 1892 SHOWING WEST BREAKWATER AND WORK COMPLETED TO JUNE 1896.



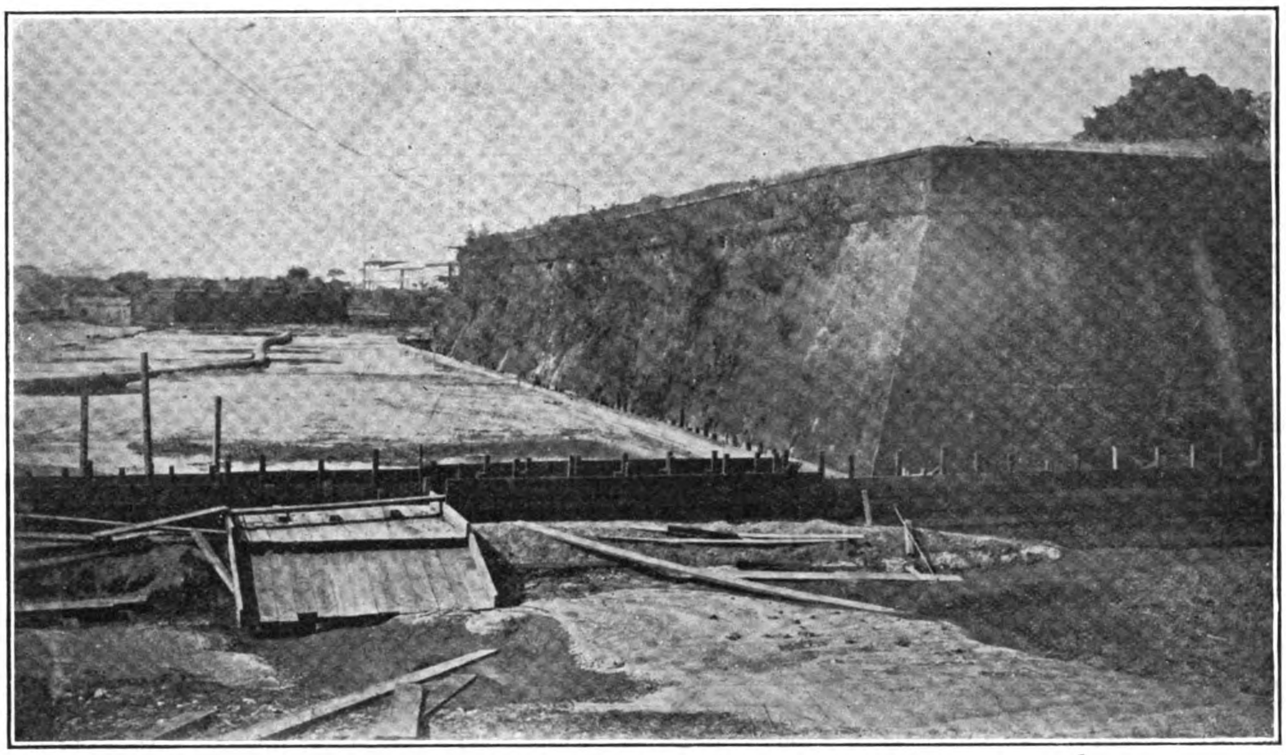
ATLANTIC, GULF AND PACIFIC CO.'S MODEL VILLAGE FOR EMPLOYES AT THEIR QUARRY

controlled by a company which, builds, owns and operates all the wharves, sheds, warehouses and handling appliances. Incoming freight is partially assorted on shipboard and segregated at the sheds. All goods going to the warehouses in the bonded area or to the city are placed in cars directly from the area and an arrastre plant controlled by the government and operated on a basis of actual cost plus a reasonable percentage to cover interest and maintenance, the cost of handling from ships tackle to the retail merchant will be as follows:

Large consignments,

the wharf system now under way is complete

To effectually provide for the present volume of commerce for Manila it is estimated that five wharves, similar to those now under construction, and an additional shed space of about 120,000 square feet, on the new area will be needed.



ANOTHER VIEW OF THE MOAT IMPROVEMENT FILL

ship's tackle and forwarded. All goods to be forwarded by rail are segregated in the wharf sheds, placed in cars and forwarded to their destinations.

The subject of handling freights to and from ships is too extensive for exhaustive discussion in this article; however it may be well to state that it is estimated (from the cost in other ports) that, with the wholesale warehouses concentrated on the new

Via cars and warehouses on new area .... ₱1.75 a ton
Via cascos and city warehouse .. 3.00 ,, ,,

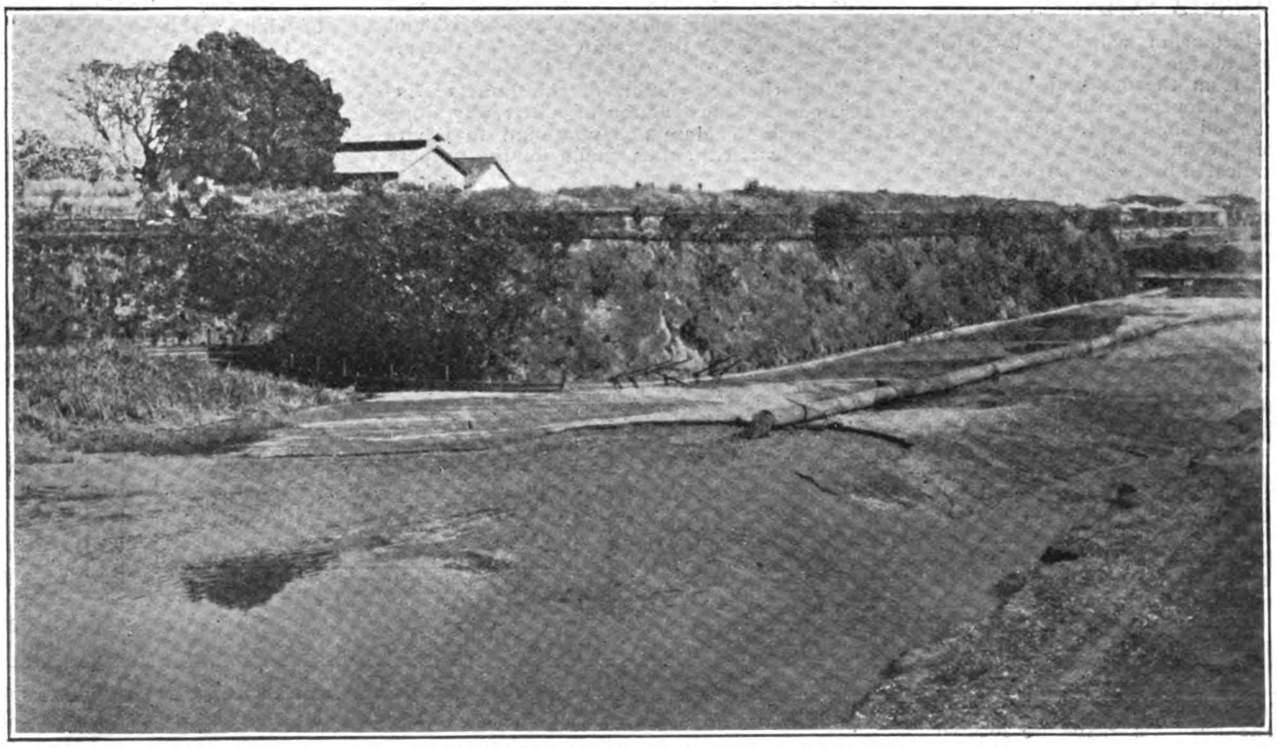
Extra cost of segregation and storage on small comments.

Warehouses on new area .... ₱0.15 a ton.
Warehouses in the city .... 0.60 ,, ,,

On this basis a saving of ₱700.000 annually would be made for Manila's merchants when

If the government of the Philippines, having about 192 acres of new land to dispose of, will offer it to the wholesale merchants of Manila on liberal terms it is believed that even those having considerable capital invested at the present time in city warehouses would find it advantageous to move to the new area.

With the concentration of the wholesale district and with adequate wharfage and warehouse

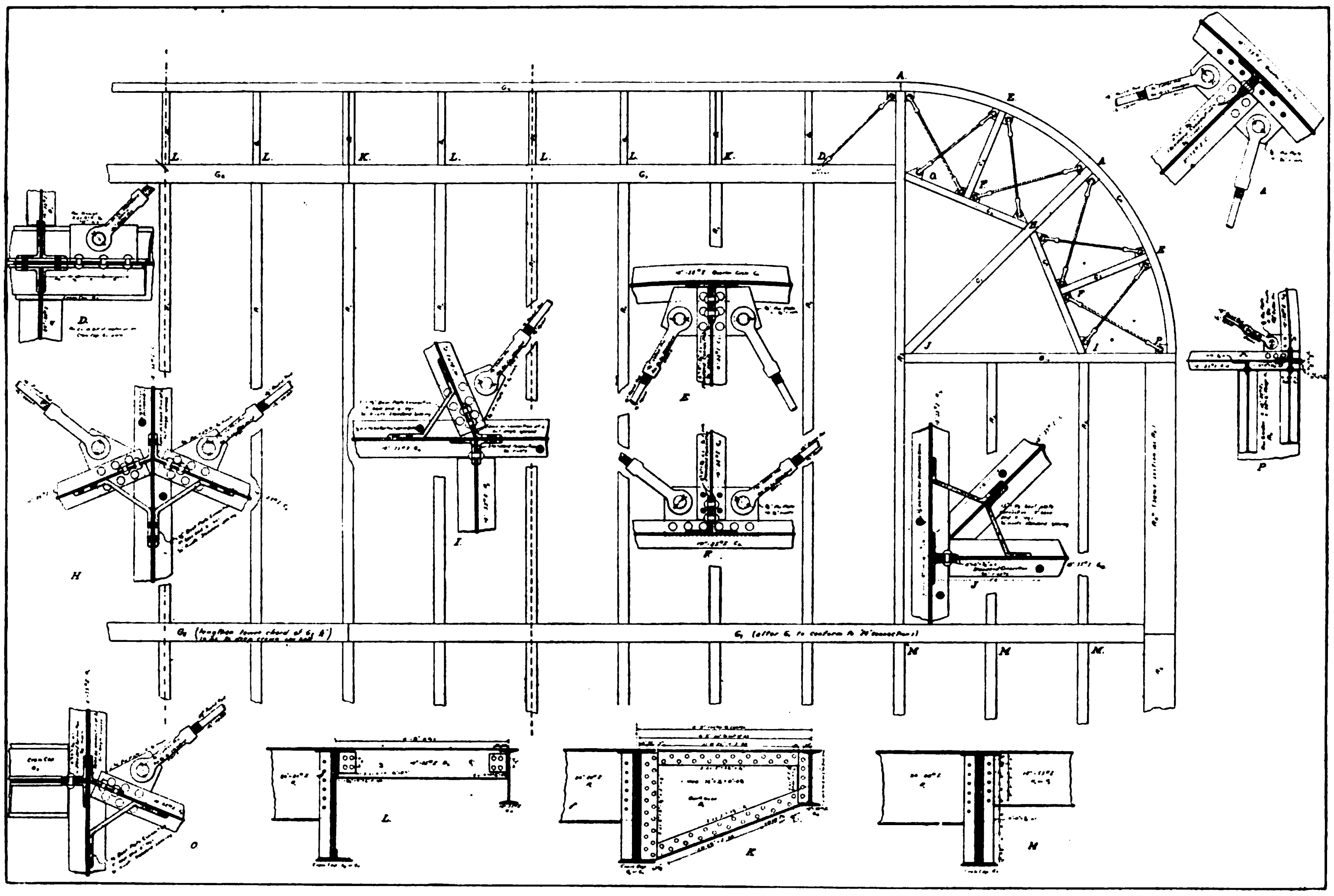


VIEW OF THE MANILA MOAT IMPROVEMENT

space provided, there will not only be a vast reduction in the cost of handling cargoes, but, owing to the absence of delays in loading and discharging, there will be a material reduction in freight rates.

a few years these will be built and round off a most desirable plan of construction projected with a view not only to retain the natural attractions but to add beauty in art thereto with striking yet pleasing results.

are made available. When completed it will be about 20 miles in length and its construction will cover a number of years unless other than insular funds are made available. There has been ₱350,000 appropriated for the purpose,



END DETAILS OF PIERS, MANILA PORT WORKS

THE LUNETA EXTENSION

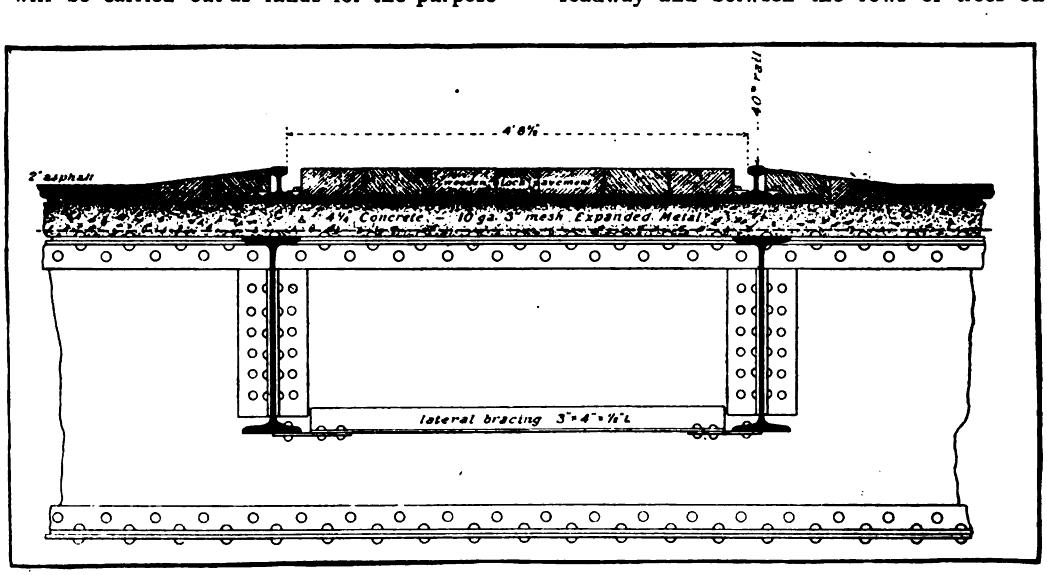
The Luneta Extension which is included in the drawing of the New Port and which was constructed from the material taken out by the dredger in deepening the new harbor, when surfaced and laid out, promises to become one of the most attractive spots in Manila. As indicated by the illustration, the center will be set aside for a new Luneta similar to the oval driveway now patronized so liberally and of the same name. On the south side there has been set aside sufficient area for three club sites, two of which have already been taken by The Elks and The Army and Navy Club while the third will very probably be secured by a boating or yacht club. The two club buildings referred to will cost in the vicinity of ₱400,000. On the north side of this extension a site for a hotel has been sold to a hotel company now making arrangements to erect a hotel that will cost approximately ₱1,000,000. The balance of the extension will be cut up into small park sections with wide walks and set out with trees, while well kept lawns in the sections so designated will conclude the special features of this desirable section. The work of laying out the Luneta and the park will begin at once and about ₱50,000 will be spent in completing the work as planned with as much expedition as possible.

In connection with this section of the city, the sites for the group of new insular buildings according to the Burnham plans are located directly opposite the new Extension and in

The capitol building projected, alone, will cost in the neighborhood of ₱5,000,000 and the balance of the group will be proportionately as substantial and beautiful.

With the completion of the Luneta Extension the construction of a driveway along the beach of Manila Bay around to Cavite will be carried out as funds for the purpose

to be expended in three years, 100,000 pesos of which will be available in June, 1908. This will construct the roadway to Pasay and make a most desirable driveway. The driveway reserve will be 75 meters in width with a roadway 25 meters wide. Two rows of shade trees will be planted on either side of the roadway and between the rows of trees on



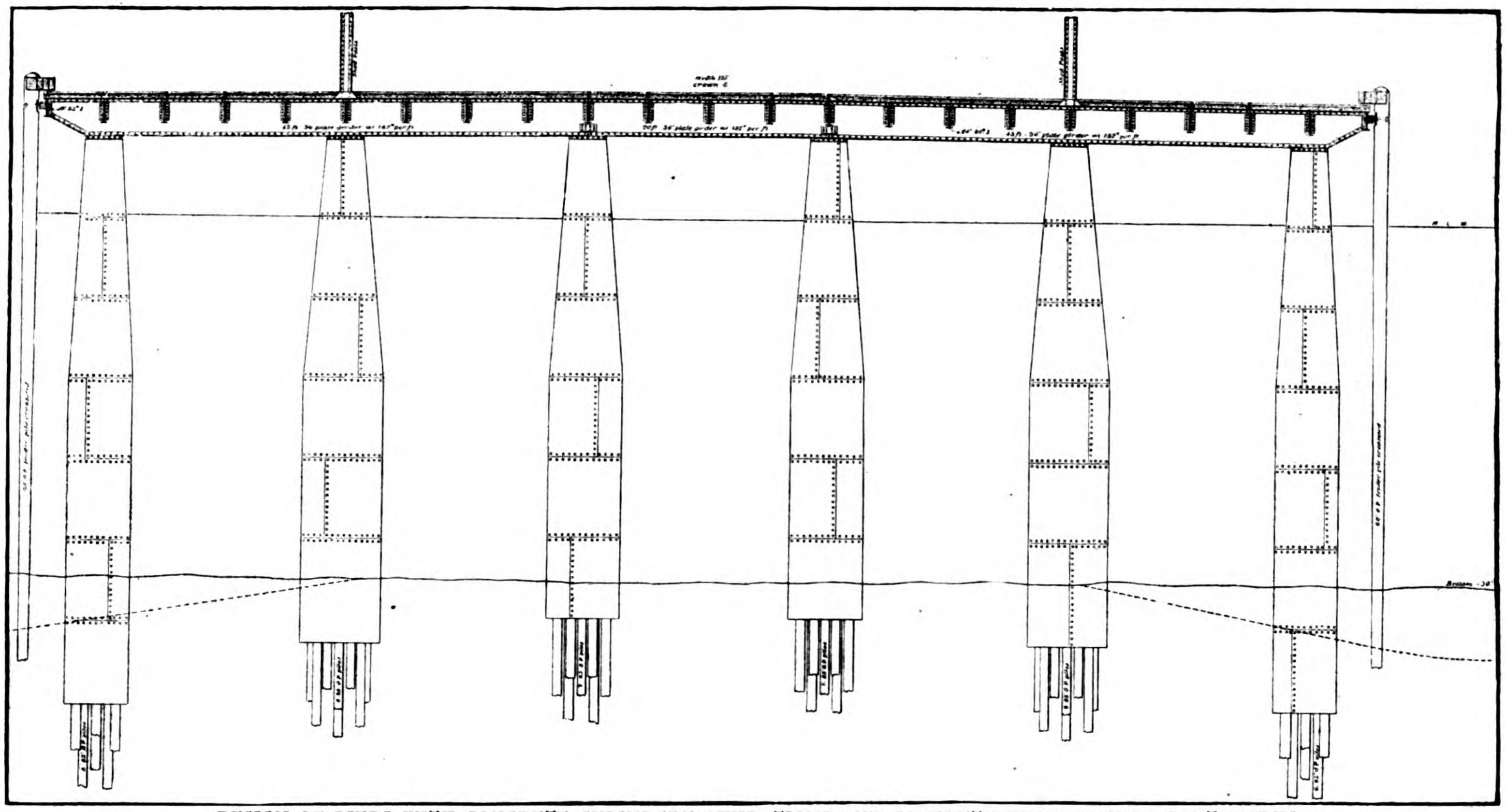
TRACK AND FLOOR DETAILS OF PIERS, MANILA PORT WORKS

one side will be built a bridle path while on the other side the same space will be prepared for a promenade.

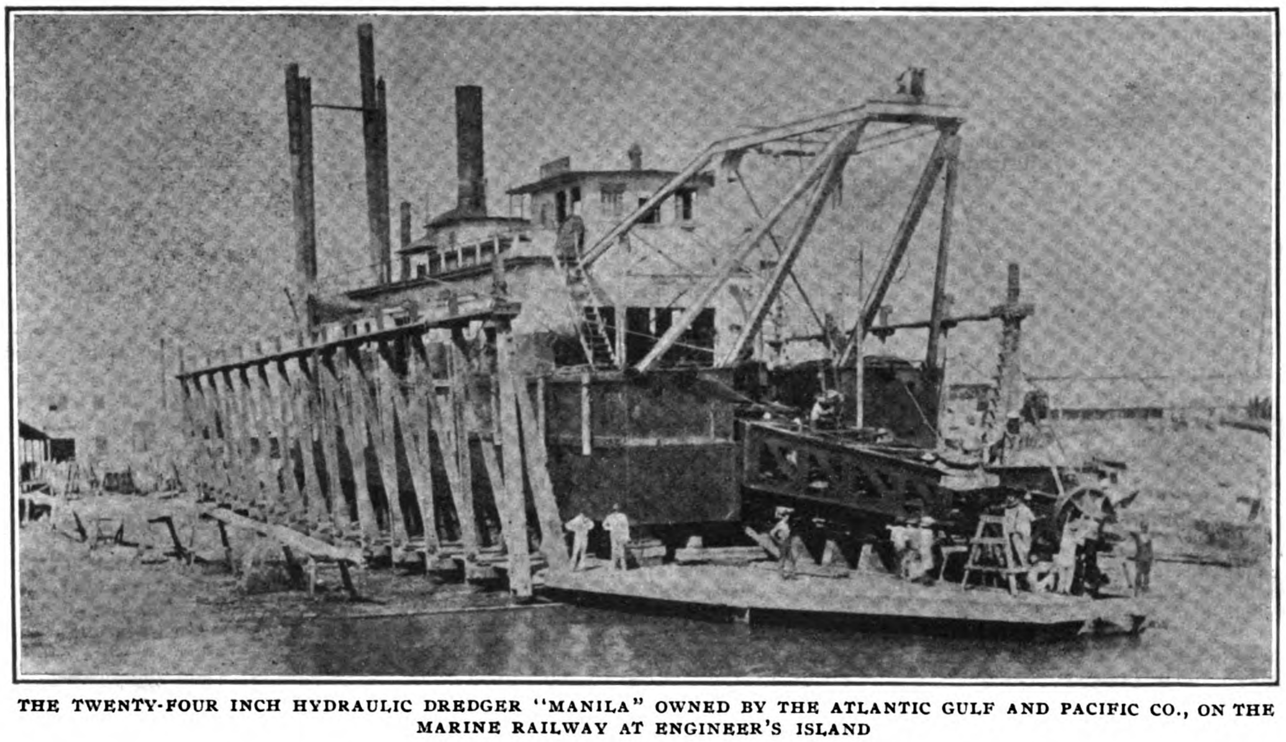
The New Luneta with its surrounding park features, including the walls and moats of as the necessary money is made available the project will be developed.

The total area of the Luneta site, including hotel and club sites, boulevards, etc., is 292,000 square meters. Of this area the hotel remainder of the Luneta Extension is occupied as follows:

New Luneta	79,000	sq. meters.
Grand Plaza............	76,120	"
Boulevards	87,300	"



DESIGN OF PIERS WITH CONCRETE CYLINDERF OUNDATIONS AND CONCRETE DECK; MANILA PORT WORKS



THE TWENTY-FOUR INCH HYDRAULIC DREDGER "MANILA" OWNED BY THE ATLANTIC GULF AND PACIFIC CO., ON THE MARINE RAILWAY AT ENGINEER'S ISLAND

Manila is the center of a complete system of parks projected for the Philippine capital. This system will include at least three large parks and will take years to complete. The details are in the hands of a committee and site includes 20,573, the Elks' Club site 3,739 he Army and Navy Club site 9,558, and site C. not yet assigned, 4,543, making a total of 38,413 devoted to building sites. A public garden (on the sea side of the hotel site) contains 11,376 square meters. The

The cost of this Luneta site is as follows:

Bulkhead (length 457 meters), ...	₱305,550.00
Fill, 2,683,00 cu. yds., @ 24cts.	643,920.00
	₱949,470.00

CHINESE ENGINEERING AND MINING CO.

The sixth annual ordinary general meeting of the above company was held at Winchester House on 28th ult., Mr. W. F. Turner presiding. The secretary (Mr. Alfred W. Brett) having read the notice calling the meeting and the auditors' report,

The chairman said:—On the occasion of the last annual meeting I stated that the board felt justified in looking forward to a steady expansion in the profits of the company, and, consequently, in due time to an increase in the dividends. The repor tand accounts show the fulfilment of that anticipation, the year having proved to be one of great prosperity—a prosperity which is not due to any exceptionally favourable conditions, but to steady progress in the development and working of the mines and in the organisation and management of the business. The results of the year's operations may be expressed in one sentence—an increase of £57,000 in the net profits available, after making provision for redemption of debentures and for depreciation; a consequent increase in the dividend from 10 per cent. to 15 per cent., and an expenditure of about £110,000 on the new electrical installations at the mines, the benefits of which will only accrue during the year now current and in the years to come.

THE BALANCE SHEET.

Dealing with the balance-sheet, he said the amount due to creditors was somewhat larger than usual, but this is always a fluctuating figure, The 6 per cent. debentures outstanding have been reduced by the annual drawing of the sum of £10,000, and now stand at £411,460. The next item, £4,114. is interest accrued on the debentures for the two months from Jan. 1 to Feb. 28, 1907. On the other side we have cash in Europe and in China £174,484, and loan against security £75,000, together £247,483. The loan has since been repaid. The amount due by debtors was £44,609, and we have satisfied ourselves as to its value. The insurance premiums paid in advance, £3,424, explains itself. The stores on hand and in transit £74,845, show an increase of about £6,000 on the previous year, and they have been valued as usual on the basis of cost price. The live stock amounted to £6,142. The stock of coal and coke stood at £9,500, against £2,725 in the previous year. It is nevertheless, a very small figure—quite insignificant in view of the volume of our trade, and one which we hope to increase. The shares held in China, £2,999, have been valued on a very conservative basis. The next item, £1,037 821, represents the purchase of the company's undertaking, and stands as before. The steamers account, £94,819, is also unchanged, depreciation being provided for in the reserve for depreciation account. The expenditure on capital account shows a total of £161,353 during the year, which is divided under three heads. Expenditure at Ching-wang-tao on pier and harbour works, etc., amounted to £21,007. The works at Ching-wang-tao are practically completed. The expenditure at mines and depôts was £30,376, composed principally of the cost of deepening and en arging the shafts at Tongshan and Linsi, erection of buildings, purchase of land and rolling stock, and other items. The further expenditure on the new electrical installations at Tongshan and Linsi amounted to nearly £110,000, the total expenditure under this head up to Feb. 28 last having been about £140,000. The final figure in in this connection is not yet available, but the two installations have been completed and are now in operation. Our capital expenditure, therefore, from this time forward will, we hope, be quite small in comparison with what it has been during the past two years.

THE PROFITS.

The gross profit for the year amounts to £241,215, compared with £178,580 for the previous year. The interest account, £5,728, shows an increase of £1,615, and the fees on tranfers and share warrants, etc., amount to £411. The expenses in Europe are practically the same as in the previous year. You will notice the sum of £100 as a donation to the China famine relief fund. The amount is not strictly an expense of the business, but the board thought it proper that the company should contribute to the extent named. The interest on the 6 per cent. debentures, £25,187 12s., shows a reduction of £600 as compared with the previous year. There remains, therefore, a net profit on the account of £211,792. Out of this sum, £10,000 has to be applied to the redemption of debentures, and £40,000 has been placed to the reserve for depreciation account, as against £30,000 appropriated for the same purpose for the year before, leaving a balance of £161,792 9s., which is carried to the balance-sheet. Adding to this the amount brought forward, we have an available profit of £168,396 2s. 5d. Out of this sum an interim dividend of 1s. 6d. per share was paid on May 1 last, which required £75,000. The board propose that a further dividend of the same amount be declared to-day, free of income-tax, of Nov. 2 next, which will make a dividend payable on 15 per cent. for the year. After deducting the percentage to which the directors are entitled under the company's articles of associatien on the amount of profits in excess of £100,000 required for a 10 per cent. dividend, there remains a balance of £11,556 10s. 2d. to be carried forward, subject to provision for income-tax. The figures with which I have been dealing are irrespective of certain claims which have been made by H. E. Chang Yen Mao. These claims are chiefly in connection with the old company. It is not advisable to enter into any details on this subject, and I will confine myself to saying that, whilst the board are always ready to deal justly with any *bona fide* claims that may exist against the company, they will jealously safeguard the interests of the shareholders against any claims which are not well founded.

OUTPUT AND SALES OF COAL.

The output of coal for the year 1905-6 was 833,600 tons, whilst for the year 1906-7, with which we are dealing, it slightly exceeded 1,000,000 tons. It is important to bear in mind that this result was achieved without the assistance of the new electrical plants at Thongshan and Linsi. For the seven months to Sept. 30, 1906, the output was 583,125 tons, whilst for the seven months to Sept. 30, 1907, it was 698,817 tons, an increase of no less than 115,000 tons. The sales of coal during the same periods were 534,726 tons in the first period and 606,250 tons in the second period. At Sept. 30 last we had a stock of coal and coke amounting to about 60,000 tons. This is the largest stock we have had for a considerable time, and we shall be pleased to see it larger rather than smaller.

The next paragraph of the report deals with the erection of the electrical pumping and lighting plants at Thongshan and Linsi. The installation at Thongshan came into operation of April 16 last and that of Linis on June 25 last. Bearing in mind the magnitude of these two installations, the whole of which had to be manufactured in Europe, shipped to Ching-wang-tao, transported thence to the mines, and erected by Chinese labour under the supervision of Europeans, the accomplishment of this work within a period of about 18 months leaves but little room for dissatisfaction. The delays naturally gave rise to certain claims against the contractors, but these have been amicably settled, and the amount agreed upon will go in reduction of the cost of the plant. The installations are proving entirely satisfactory, and, thanks to their operation, our general manager estimates that the output for the current year will amount to about 1,200,000 tons. We are advised that as development proceeds, the reserves of coal in the mines promise to prove much greater than has hitherto been anticipated, and we look forward to a steady annual increase in the output for some years to come from the existing mines alone. Our general manager reports that in his view there would be no more difficulty in disposing of the annually increasing output which we have in view than there has been in disposing of that of the past year.

PORT OF CHING-WANG-TAO

I have already stated that the works which have been in progress at Ching-wang-tao are practically completed. The breakwater has been extended 2,300 ft.; there are two chord quays, and the accommodation is considered sufficient for present requirements. The trade of the port increases steadily; several of the largest shipping firms in China have established themselves there; the visits of large ocean-going steamers are becoming more frequent; and the advantages offered by the Ching-wang-tao route to Tientsin, as compared with the route *via* Taku, are being more and more appreciated. The number of steamers visiting the port during 1906-7 was 280 (or 48 in excess of 1906-5), and included 17 oversea steamers, notably the P. and O. steamships *Poona* and *Pera* which were 490 ft. long, and had a displacement of 15,000 tons, and which came alongside the breakwater and left again with as much ease as ordinary coasting steamers. Included in the cargo which these home steamers brought were 21 boilers, each weighing 30 tons. A cargo of 72,000 bags of flour, per the steamship *Hyades*, was discharged in 27 hours. The amount of cargo landed at Ching-wang-tao during the year was approximately 71,553 tons, 31,400 tons of which was landed during the three months of the winter season, and the coal exported was 153,415 tons. In the month of August last two large ocean-going steamers were in the port at the same time—viz. the *Amiral Olry*, belonging to the Chargeurs Réunis, with a cargo of 3,000 tons for North China, and the *Heliopolis*, with the repatriated coolies from South Africa. These ships entered the harbour drawing respectively 22 ft. 8 in. and 21 ft. 6 in. and were accommodated easily, the arrangements generally giving entire satisfaction. As regards the question of reserves—first, we have the reserve for redemption of debentures £41,666; next, the reserve for depreciation, which has been brought up to £150,000; next, you have the exchange account, £84,390, which makes a total reserve in round figures of no less than £275,000. So far as we can see the omens for the company's future prospects are all favourable, and we believe that we may reasonably regard the results obtained in the past year as representing a normal or base line from which we may proceed towards operations on a larger scale, which should be attended by an even greater degree of prosperity. I now propose:—"That the directors' report and accounts be and they are hereby received and adopted, and that a further dividend be declared of 1s. 6d. per share, making 15 per cent. for the year, free of income tax, payable on Nov. 2, 1907."

THE REPORT ADOPTED

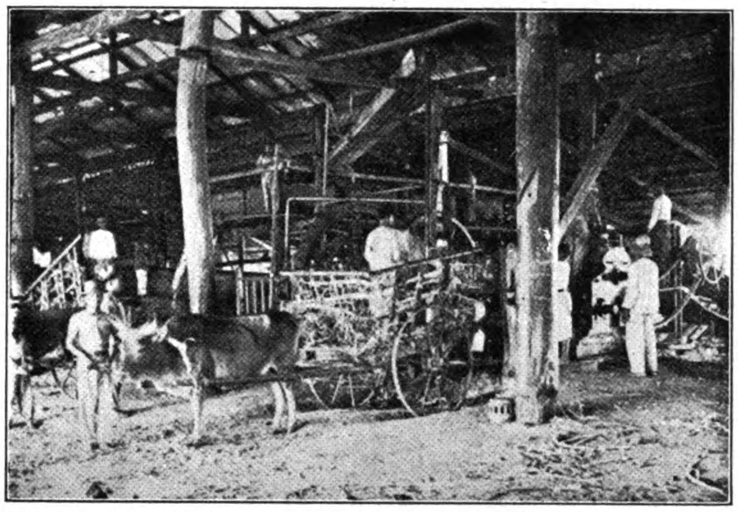
Mr. G. Todd Symons seconded this motion, which was put and carried unanimously without discussion. Mr. Edmund Davis proposed the re-election of the retiring directors (Messrs. Herbert C. Hoover, George Todd Symons, W. F. Turney, and the Chevalier E. de Wouters). Mr. Leon Trouet seconded the motion, which was agreed to. On the motion of Mr. Watts-Doney, seconded by Mr. Michael, Messrs. Annan, Dexter & Co., were reappointed auditors, and the proceedings then terminated.

THE SUGAR INDUSTRY IN NEGROS

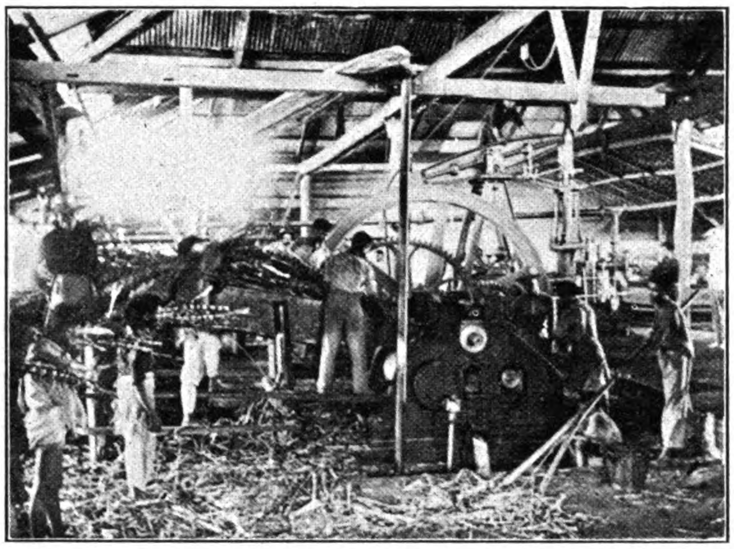
In the greatest sugar producing year of the Philippines, the Island of Negros sent to the markets of the world nearly 134,000 tons, equal to nearly forty-five per cent of the total crop of the Archipelago for that year.

That was in 1893. Through the employment of American and English capital the thirty years preceding 1893 showed a steady and rapid growth of the sugar industry in the Philippines.

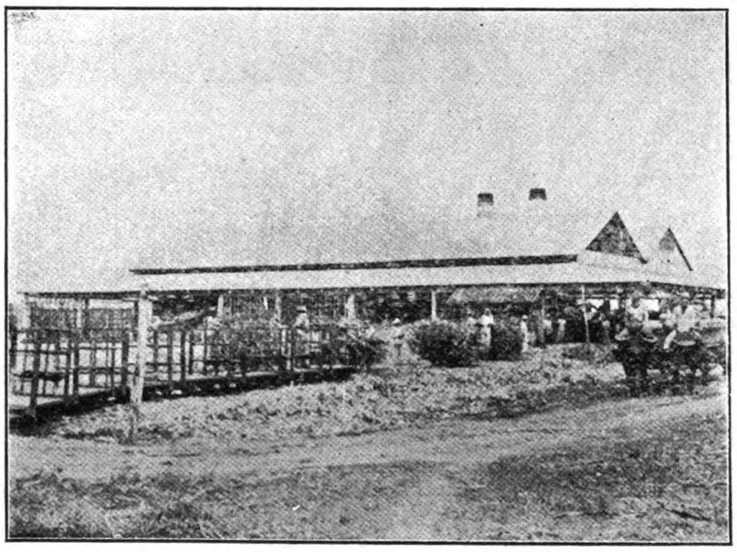
In 1855 the total output of the islands was 6000 tons annually. It went up to 30,000 tons within the first five years thereafter; in the next ten years to 100,000 tons and reached its highest point, 300,000 tons, in 1893.



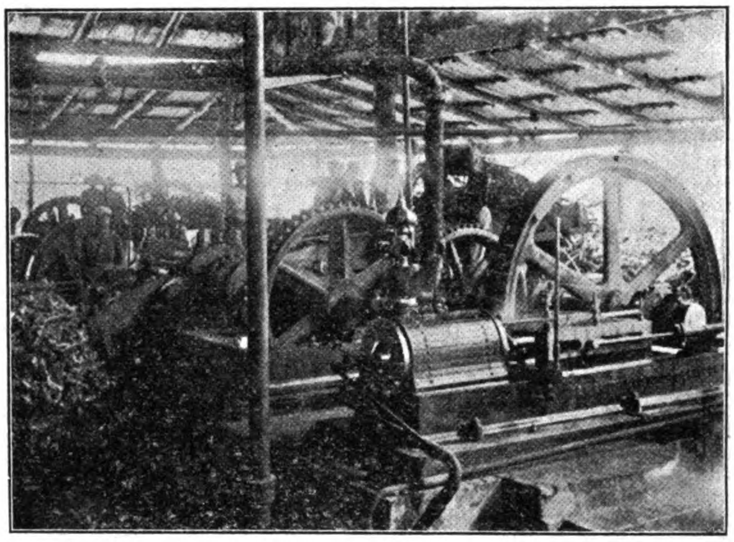
INTERIOR OF THE MILL AT *Hacienda Esperanza*, ONE OF YNCHAUSTI & CO.'S PROPERTIES, LA CARLOTA



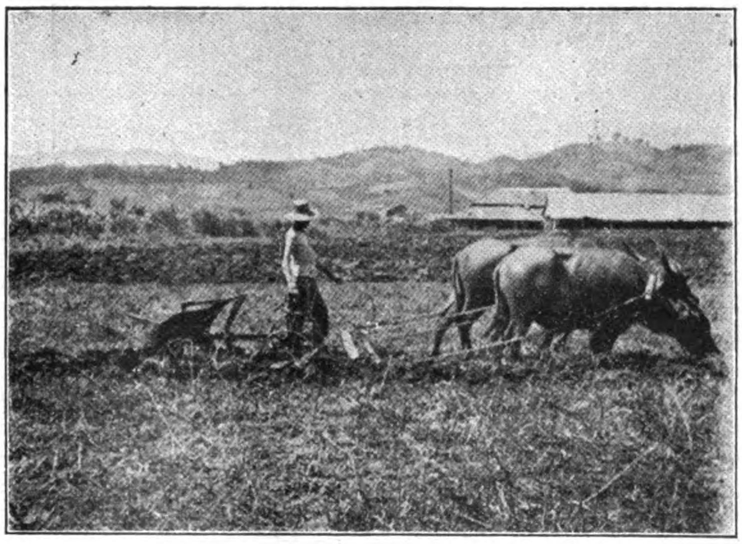
THE BIG MILL ON *Hacienda Camauug*, LA CARLOTA



EXTERIOR OF MR. KAPPELLER'S MILL AT *Refugio* SHOWING THE TRAMWAY FOR HAULING CANE AND AMERICAN WAGON LOADED WITH SUGAR



THE INTERIOR OF MR. KAPPELLER'S SUGAR MILL AT *Refugio*, SHOWING THE ENGINES AND TWO SETS OF ROLLERS CRUSHING



THE SLOW AND PONDEROUS CARABAO, CRAWLING AT A SNAIL'S PACE *Hacienda Providencia*, SAN CARLOS

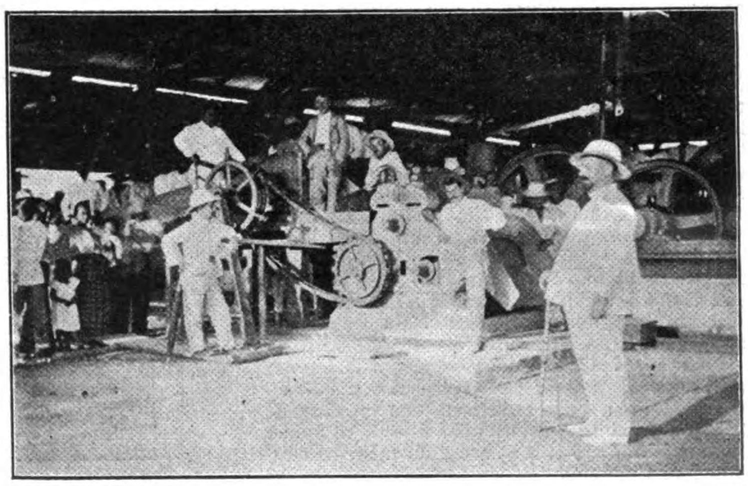


Photo by Casanave, Iloilo.

THE INTERIOR OF A 15-H. P. MILL ON *Hacienda Socoro*, SAN CARLOS DISTRICT—A FAIR TYPE OF THE MACHINES IN USE IN NEGROS

But the years that have followed fail to show progress.

The movement has been rather retrograde. There have been ten years of war, famine, locusts, diseases among the cattle, and adverse legislation that have put Philippine sugar at a disadvantage in the markets of the world.

Yet the investigator will find that the real source of the stagnation of the past dozen years has been due, principally, to the withdrawal of capital and the subsequent lack of that spirit of enterprise that belongs to the races of the temperate zone. The land of Negros is as rich as ever, and under proper management will yield more than ever before. The climate is as generous and the rainfall always assures the necessary amount of moisture. There are great markets close at hand in which the product of the Negros hacienda ought to find ready sale. It is not dependent upon the United States tariff.

But the spirit of enterprise is lacking. There is no money in the country. It takes a lot of money to run a sugar plantation. The little capital that is offered, and is keeping things running, commands a price that would make the American sugar grower and farmer sit up and rub his eyes. The capitalist who backs the Negros sugar planter today shares so largely in the profits that there is nothing left for the planter to improve his methods with.

So there must be, after all, a field in the Island of Negros for a wide-awake business man who has sufficient capital to back him, and good profits for the capitalist whose custom it is to back brains.

Just think of the great market for sugar in China and Japan. They use Java sugar there now. Why? Because in Java they have central sugar mills, where the highest percentage of sugar is extracted from the cane at the lowest cost. They send centrifugals to China where it easily outclasses the raw sugar of the Philippines. Men who have studied the question carefully say that if the Philippines sugar industry was run on the same lines today as it is in Java the Philippines product would crowd that of her neighbor out of the Far Eastern field.

It is a big question, but one well worth studying, to the man who has money to invest. In the pages which follow, the writer has not attempted to discuss the matter, but merely to show what has been done and what the conditions now are on the Island of Negros.

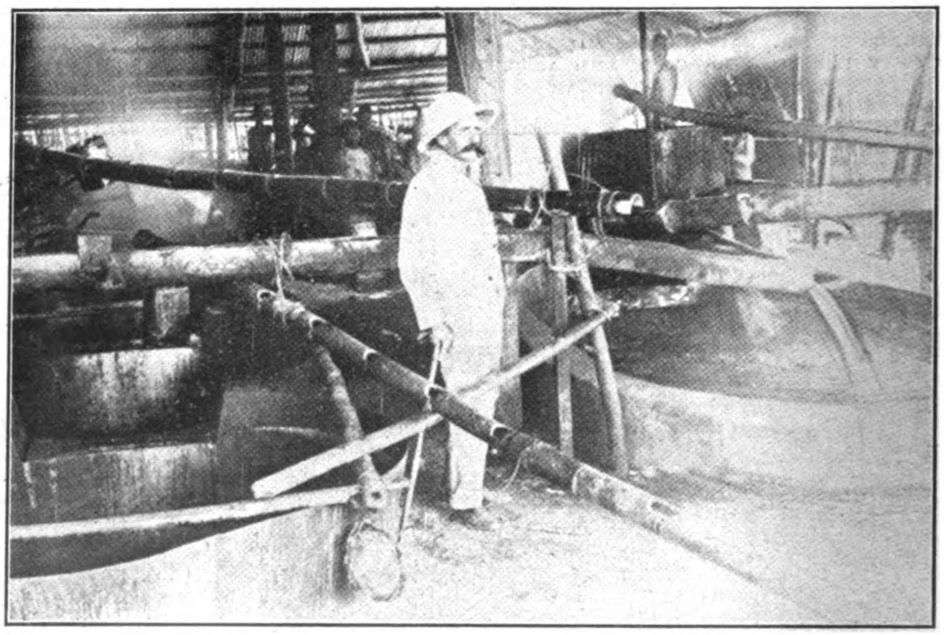
It is not generally known that American capital played a prominent part in the development of the sugar industry on Negros and Panay. Such is the case, however. Coupled with the earliest history of sugar cane culture are found the names of Russell & Sturgis, an American firm, and Loney & Co., an English concern. These enterprising pioneers of trade in Iloilo advanced the money to the pioneers who cleaned the forests from Negros and planted the clearings in cane. It was American and English capital that purchased the mills and that fed the multitude of laborers while they planted and harvested the crop. It was under the stimulation of such enterprise that the industry experienced its wonderful growth between the year 1855 and 1893.

While sugar is the great staple of Negros, it is far from being the only source of wealth to the island. There are vast areas of grand land for abacá, coffee, rubber, corn, and tobacco, while the rice crop each year at the present time is very large. There is also a large amount of land available for cocoanut culture. At the present time there is a narrow fringe of cocoanut groves around the island, but practically no copra is shipped out. In the majority of cases, the blossoms are cut and the sap from the stems is used as a beverage (tuba). The nuts that are allowed to mature are used in the process of sugar boiling.

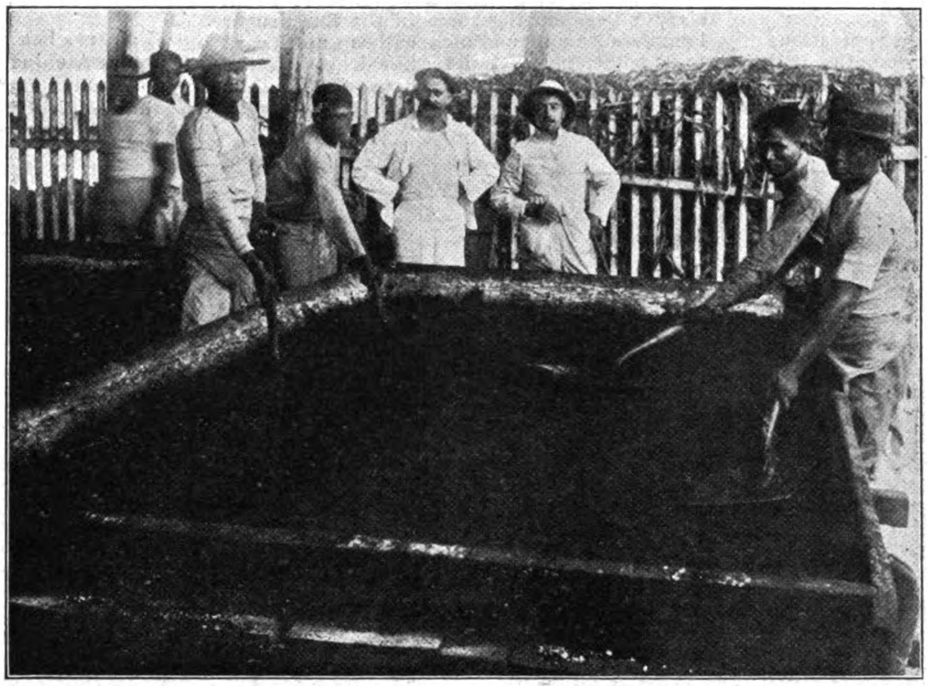
Coal is found in many places on Negros, and some of it is of excellent quality. None of the known beds have yet been developed. It is believed that eventually oil will be found on the island, as it is at present on the nearby island of Cebu.

Plans are now under way for the development of a vast bed of coal discovered in the vicinity of San Carlos by Mr. Jeanjaquet, a planter. Although large areas of forests rich in hard woods disappeared before the axe of the pioneer, there is still timber enough on Negros to make it an important factor in discussing the wealth of the island. At present there is one large saw mill in operation near Cadiz, in the North, where large contracts of

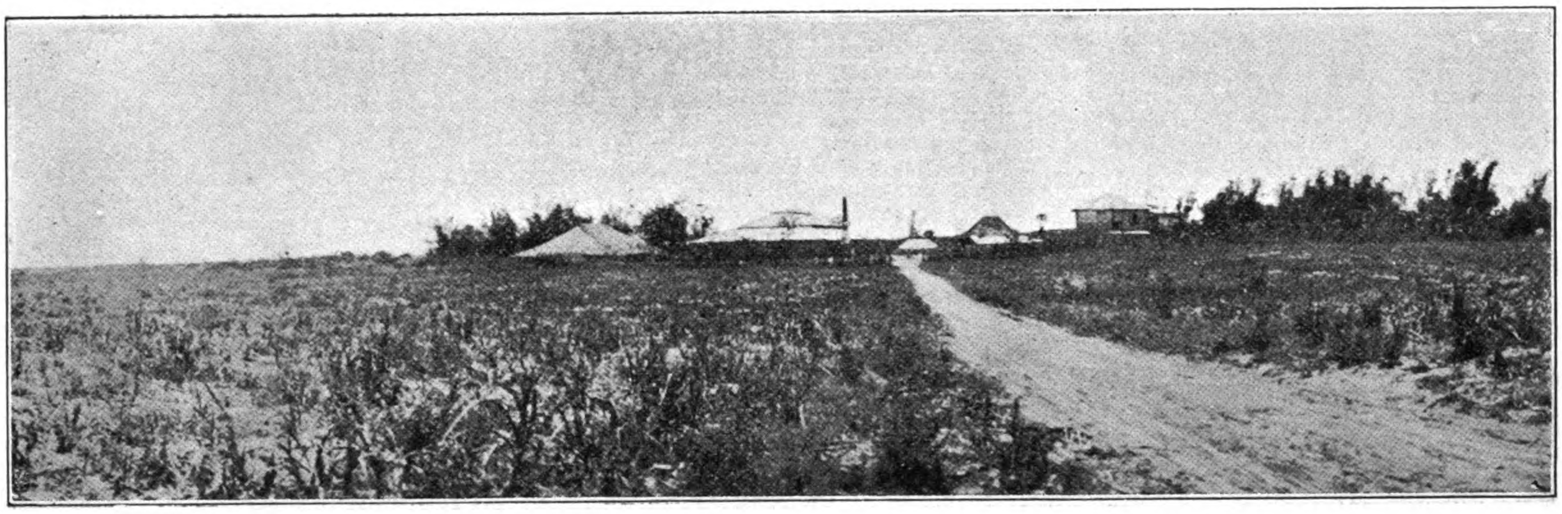
SR. AQUILINO YANSON (NO. 1), MANAGER OF ESTEBAN DE LA RAMA'S LARGE *hacienda* IN THE ILOG RIVER VALLEY, WITH HIS THREE ASSISTANTS AND THE TOOLS ACTUALLY USED IN CULTIVATING SUGAR CANE ON THE *hacienda*.—NOTE THE CRUDE PLOW, BAMBOO HARROW, AND RUDE HOES



THE BAMBOO "MACHINERY" OF A NEGROS SUGAR MILL. SR. M. GINER INSPECTING THE BOILING AT *Hacienda Velez Malaga*

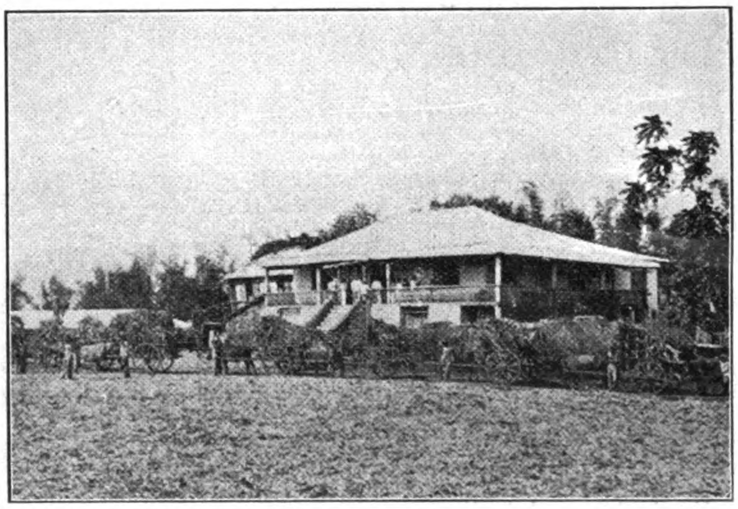


"MIXING" SUGAR JUST FROM THE COOKING PANS SO THAT IT WILL CRYSTALLIZE QUICKLY, *Hacienda Vasconia*, SAN CARLOS



TYPICAL GROUP OF BUILDINGS ON A NEGROS SUGAR PLANTATION—RATTOON FIELD IN THE FOREGROUND

VIEW FROM THE PLANTATION HOUSE OF FELIPE BENEDICTO'S *Hacienda Layagon*, LA CASTELLANA



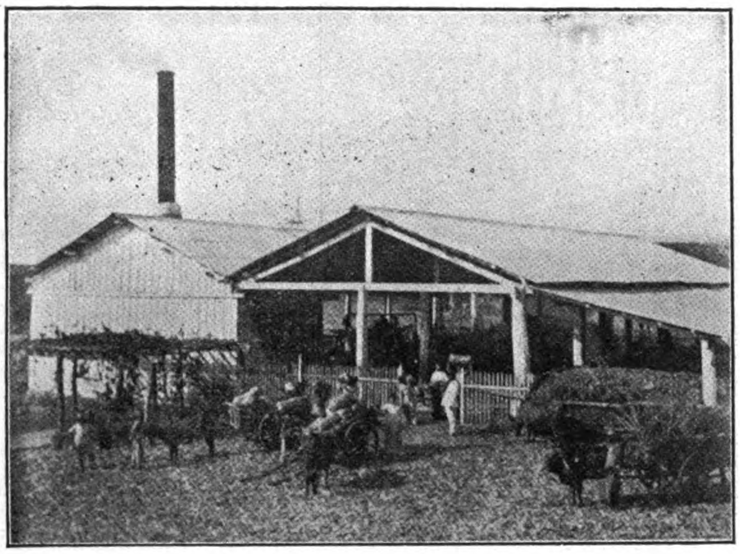
LINE OF CARTS LOADED WITH SUGAR CANE IN FRONT OF THE PLANTATION HOUSE, *Hacienda Fe*, LA CARLOTA

timber for the Philippine Railway Company are being turned out.

The proposed railway, upon which operations will be commenced within a few months, will aid greatly in the development of the island. The terminal will be at Bacolod, the capital of Occidental Negros. One branch will run south to the Ilog river a distance of about sixty miles, tapping some of the finest sugar lands, and another branch will run northward to a point not yet determined. With the advent of the railroad, a network of public highways is being planned as feeders to the railroad.

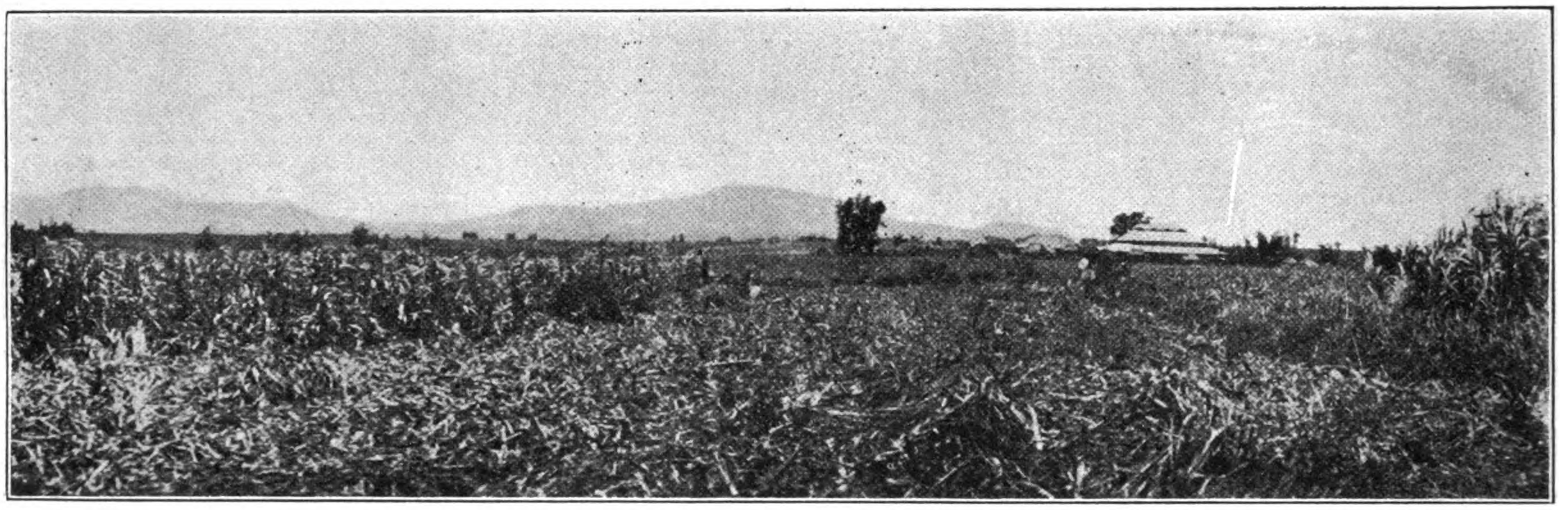
PHYSICAL FEATURES

Negros lies very near the center of the Philippine Archipelago, latitude 9° 4′ to 11 °1′ north, longitude 123° 34′ to 122° 24′ east, occupies the southwest angle of the Visayan group, between Panay, on the northwest at a distance



EXTERIOR OF THE MILL AT *Hacienda Vasconia*. NOTE THE GRAPE ARBOR ON THE LEFT OF THE PICTURE

A TYPICAL SUGAR MILL IN BAIS DISTRICT—*Hacienda Rosario*



A HALF-CUT FIELD OF SUGAR CANE ON ONE OF THE YNCHAUSTI & CO.'S ESTATES, NEAR LA CARLOTA, OCC. NEGROS

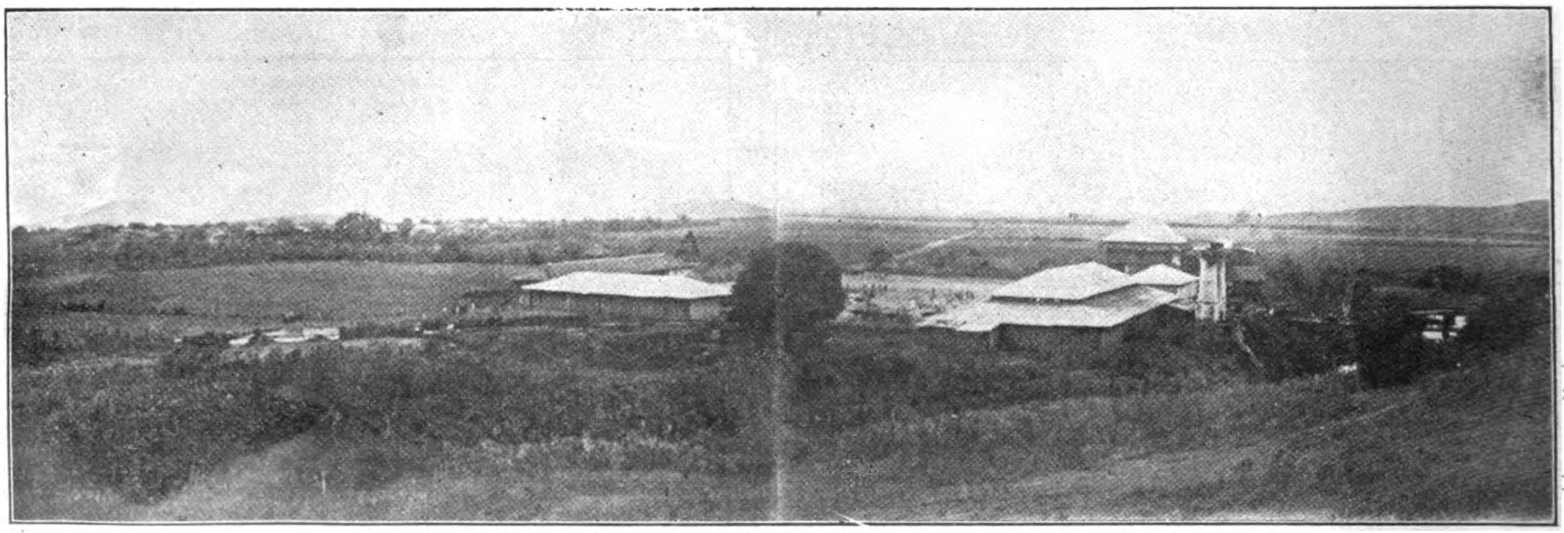


Photo by Casanave, Iloilo.

A TYPICAL SUGAR PLANTATION ON THE ISLAND OF NEGROS. SR. SEGUNDO ERMALDI'S *Hacienda la Castellana*, NEAR THE TOWN OF LA CASTELLANA, OCCIDENTAL NEGROS

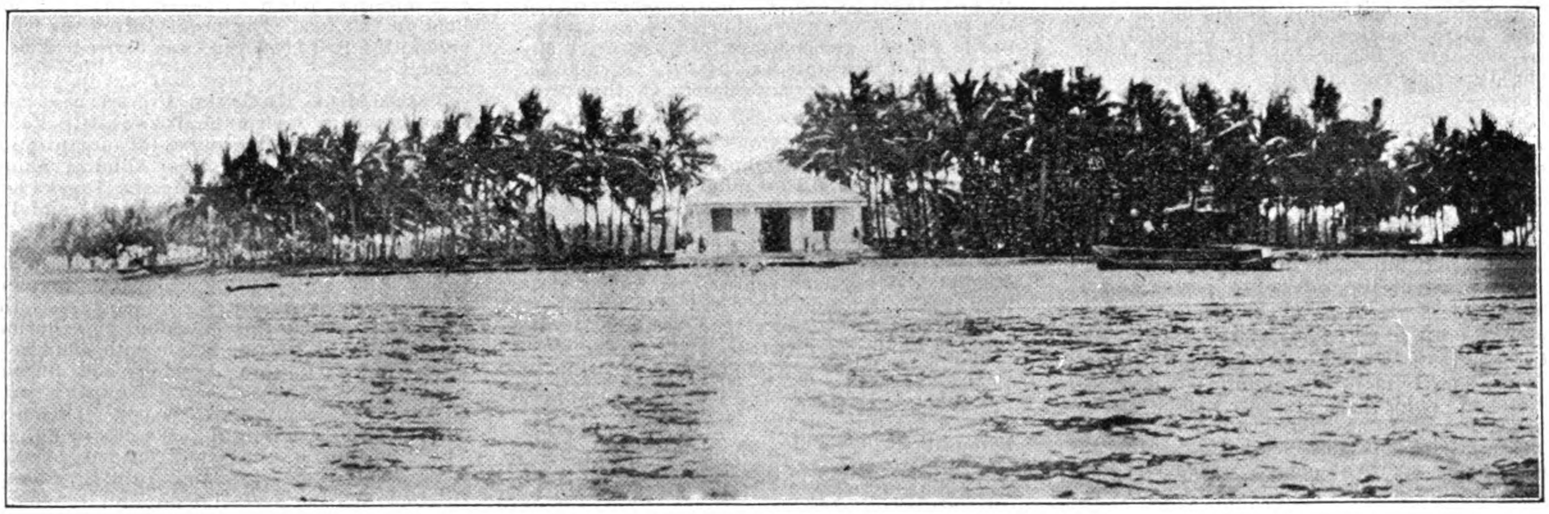
of from eight to twenty-nine miles, and Cebu on the east, at a distance of from three to twenty-five miles.

The greatest length of the Island from North to South is 134 miles and the greatest breadth from East to west is 33 miles. The coast line measures 836 miles. The total area of the mainland is 4839 square miles or nine square miles greater than that of the state of Connecticut.

and sea on the west coast there is a fairly level plain, sloping up very gradually from the sea to the foothills. This plain is from five to twenty miles wide, and extends from Cadiz Nuevo on the north to the Ilog river, a distance of over one hundred miles. Through it run scores of creeks and rivers, some of the latter being navigable by light draft boats for a distance of from two to five miles.

many years ago by an Englishman. The lorcha is flat-bottomed, two-masted and schooner-rigged; in capacity from 50 to 100 tons and very strongly built. It is designed to be beached at low tide, and is often loaded while lying high and dry between tides.

There are eight rivers on Negros that are navigable by lorchas. The greatest river is the Danao, in the north of the island. It is



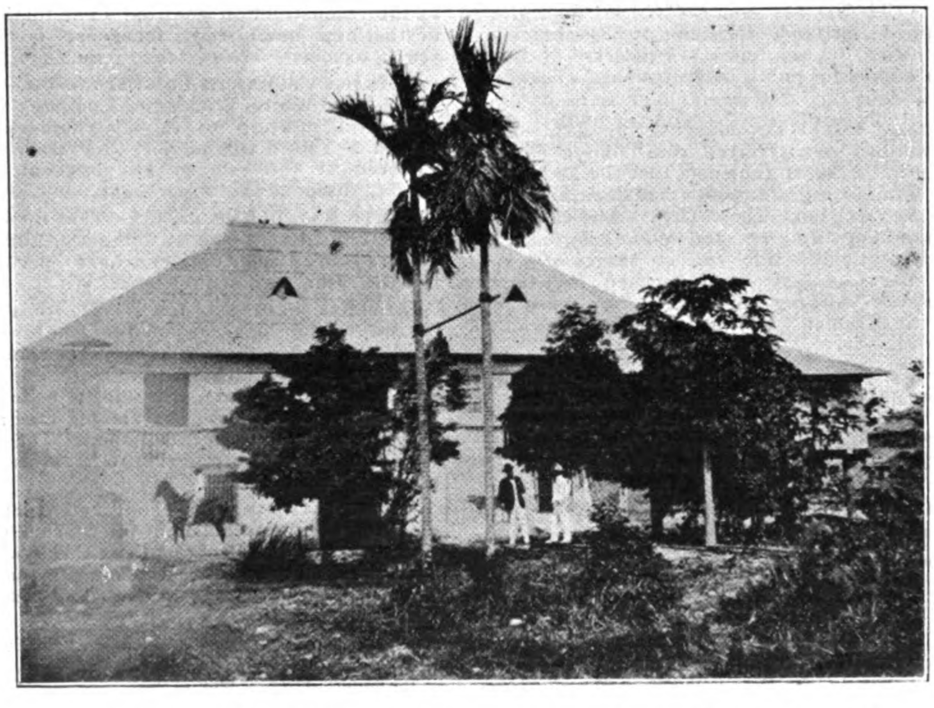
THE LORCHA LANDING AT BINALBAGAN, OCC. NEGROS

Negros has a total population of 509,766 the greater part of whom are Visayans. The mountain regions are inhabited by Negritos or Montescas. Many of the hacenderos are foreigners the greater part of whom are Spaniards.

A chain of mountains running from north to south, and somewhat to the east of the center, forms the backbone of the island. There are three peaks above 6000 feet in height, the most southerly of them being Mount Canlaon (8192 feet), an active volcano.

The peaks all lie within the northern half of the island, which comprises the province of Occidental Negros. Between the mountains

It is this splendid well-watered plain that has made Negros famous as a sugar producing country. The bulk of the land within its borders is adapted to the cultivation of cane. The marshy places are utilized for the cultivation of rice. The rivers are the highways by which the hacendero ships his product to the market. The government maintains a few good roads, but they are not of much use in carrying the sugar crop. Everything goes by water. During the grinding season, the northeast monsoon is blowing, and it is most favorable to sail transportation between the west coast of Negros and the port of Iloilo. For this particular trade the lorcha was invented



SUGAR PLANTER'S HOME—THE RESIDENCE OF SR. FELIX MONTENEGRO AT BAIS

navigable for vessels of 10-feet draught for a distance of ten miles from its mouth, but its entrance is practically blocked for large boats at present because of a sand bar. In 1898 several small Spanish gunboats escaping from Iloilo successfully lay hidden in the Danao until peace was declared. It is one of the possibilities of the future that the Danao river bar be removed and a railway terminal established on the river where deep sea shipping may load direct. The Ilog river in the south is another important stream, but is likewise blocked by a shallow bar. Other important streams on the west coast are the Bago and Binalbagan rivers, both of which are navigable for lorchas.

Today there is but one harbor on the island of Negros that is open to deep sea craft, and that is San Carlos.

The extreme northern part of the island has a very limited amount of sugar land, but there is fine timber there. About Escalante and through the Danao river valley the products are corn and tobacco On the eastern slope of the mountains is the sugar producing district of San Carlos.

There is a high table land, many thousands of acres in extent, between La Castellana and Valle-hermosa, which will make excellent grazing land. The distance between the points named is about 25 miles, and within that distance there are 24 streams, most of them of the clearest and purest water. The table land is at an altitude of from 1500 to 2000 feet above sea level. Years ago there was a settlement known as Malaiba in the heart of this district, and the inhabitants had under cultivation a rich and beautiful valley there but the place was burned in the insurrection of 1896 and has since been deserted.

Just south of Bacolod, and extending to the Bago river, there is a strip of land not adapted to cane culture, and now lying idle. Sr. Timoteo Unson, manager of the de la Rama haciendas on the Bago river, is experimenting here with maguey and believes that the whole tract can be planted with this fibre plant at a profit.—*Manila Daily Bulletin.*

FAR EASTERN COMPANY REPORTS

THE STRAITS ENGINEERING SYNDICATE, LTD.—The following is the duly audited statement of Account for the year ended June 30th, 1907.

After making more than the usual allowance for depreciation, writing off all expenditure on upkeep of buildings, plant, and machinery, all expenses incurred in the issue of debentures, and amply providing for bad debts, there remains at credit of profit and loss accounts a balance of $23,228.22 which your Directors recommend be disposed of as follows:—

Dividend of 5 per cent. absorbing	$ 5,600.00
Placing to General Reserve Fund	$11,200.00
Carry forward to next account	$ 6,428.22

NIPPON CEMENT CO.—The semi-annual meeting of shareholders of the Nippon Cement Company took place on the 29th ult. at the Nihombashi Club. The dividend for the term was declared at the rate of 30 per cent. per annum.

URAGA DOCK CO.—The Uraga Dock Company held an extraordinary general meeting of its shareholders last month. The resolution to reduce its present capital from 1,900,000 yen to 950,000 yen and at the same time to float new shares amounting to 950,000 yen was unanimously passed. It was arranged that the new issue be 10 per cent. preferential shares. The half of the sum being taken up by Mr. Asana, the remainder is to be collected from among general shareholders being parceled out at the proportion of one share for two. The consequent revision of the articles was approved and the following new members of the board of directors were elected on the proposal of Baron Shibusawa and Mr. Asano:

DIRECTORS.—Messrs. Soichiro Asano, Rokuro Hara, Motojiro Shiraishi, Matashichi Asada, Sobei Kurisu, Shingo Nakazono and Tetsutaro Saito.

AUDITORS.—Messrs. Zensuke Tanaka and Masataro Awochi.

SINGAPORE FOUNDRY, LTD.—At the Second Ordinary General Meeting of the Singapore Foundry Limited, held on Nov. 8th, the Report and Accounts were approved, and adopted and a dividend of 5% declared.

MURORAN STEEL FOUNDRY.—The subscription of the first instalment of the Muroran Steel Foundry (Seikojo) having been completely paid up, the Company held its general meeting in Tokyo on the 1st inst. This is the company which represents a coalition between Messrs. Armstrong and Co. and Messrs. Vickers Maxim and the Tanko Kisen Kaisha on the Japanese side, the capital of 10 million *yen* being equally subscribed by both parties.

KAWAGOYE RAILWAY CO.—The half yearly general meeting of the shareholders of the Kawagoye Railway Co. was held last month at the Tokyo Chamber of Commerce. Mr. Iwata presided and the following accounts and distribution were adopted:—

	yen
Gross profit	19,986
Brought from last term	490
Total	20,476
To reserve	1,000
To bonus	600
Dividends to shareholders (10 per cent. per annum)	18,000
Carried forward	876

KYUSHU RAILWAY CO.—The Kyushu Railway Co., nationalized on June 1st, held the final general meeting of shareholders last month at the Moji Club. The following accounts and distribution were adopted:—

Gross profit	1,117,306
Brought from last term	34,408
Total	1,151,613
To bonus	5,000
Dividends to shareholders (9 per cent. per annum)	1,144,140
Carried to liquidatory term	2,475

JAPAN CAR BUILDING CO.—The general meeting of the shareholders of the Japan Car Building Co. was held on the 19th ult. at the Nagoya Chamber of Commerce when the resolution of an addition of 24,000 shares to its capital and a bonus of 15,000 yen to the board of directors was passed. Dividends to shareholders were declared at the rate of 11 per cent.

NARITA RAILWAY CO.—The half yearly general meeting of shareholders of the Narita Railway Co. was held last month and a dividend of 5 per cent. was declared.

NANKAI RAILWAY CO.—The ordinary general meeting of the shareholders of the Nankai Railway, nationalized on August 1st, took place last month at the Osaka Chamber of Commerce. The dividend for the term from April to July was declared at the rate of 0.54 per cent. per annum.

KWANSAI RAILWAY CO.—The semi-annual general meeting of the shareholders of the Kwansai Railway Company was held last month at the Osaka Chamber of Commerce. The following accounts and distribution were submitted:—

	yen
Gross profit	1,157,925
Brought from last term	4,446
Total	1,162,371
Divided to shareholders (8.6 percent. per annum)	1,039,717
Carried forward	122,553

SANGU RAILWAY CO.—A general meeting of the shareholders of the Sangu Railway, nationalized on October 1st, was held in Osaka last month when the dividend of 18.3 per cent. was declared.

RAHMAN HYDRAULIC TIN CO.—The statutory meeting of the Rahman Hydraulic Tin, Ltd., was held at the Penang office of the Company on November 20.

Mr. F. Douglas Osborne, who presided, submitted the following figures to the meeting:—

Capital $450,000 divided into 45,000 shares.

Reserve	15,000 shares.
Vendors	15,000 shares.

Applied for and allotted 10,885 shares; Guaranteed by Vendors 4,115 shares;—15,000 shares offered for public subscription. *Penang Gazette.*

KRAMAT PULAI TIN MINING CO., LTD.—A telegram has been received from London, says the *Straits Echo*, to the effect that the Kramat Pulai Tin Mining Co., Ltd., has been floated there by Mr. Loke Chow Thye. The capital of the Company, we understand, is to be £100,000, divided into 100,000 shares of £1 each, the Company being formed for the purpose of working some very rich mining lands at Kramat Pulai, in the Kinta district of Perak.

HODEN PETROLEUM CO.—The semi-annual general meeting of the Hoden Petroleum Company was held last month at the company's head office in Nagaoka, Echigo. The accounts for the term just ended published in these columns were adopted and the dividend to shareholders was declared at the rate of 36 per cent. per annum.

SERENDAH HYDRAULIC TIN MINING CO.—The directors of the Serendah Hydraulic Tin Mining Company declared a third interim dividend of 7½% payable on November 7.

TRONOH VALLEY TIN MINES (LTD.)—Endeavors are being made to place the underwriting of the Tronoh Valley Tin Mines, Limited, (which must not be confused with the well-known Tronoh Mines), a concern stated to have a capital of £120,000 divided into 120,000 ordinary shares of £1 each. The present scheme is an issue of 60,000 ordinary shares at par, and Mr. S. Willington, of 15, America-square, E. C., is actively engaged in the matter.—*Penang Gazette.*

JAPAN-CHINA BEANCAKE CO.—The first general meeting Japan-China Beancake Co. was held on Oct. 30. The profit during the term, amounting to 19,746 yen, was carried to next term.

TOKIO MILK REFINING CO.—A new joint stock company styled the Tokyo Milk Refining Company is in course of organization under the promotion of Rear-Admiral Shigehisa, Major-General Obu, Messrs. Tanaka and Fukui and others. Dr. Shimayama and Dr. Tsuno will act as advisers.

THE RICE AND TRADING CO. OF BREMEN.—The Rice and Trading Company, Bremen, which recently acquired the shares of the firm Kruger and Co., London and Burma, has established, in conjunction with some well-known merchants in London and Burma, the Burma Rice and Trading Company, with an authorised capital of £500,000. This new company will work eight rice mills in Burma. The board of directors is formed by Mr. George Gillespie (of the firm of George Gillespie and Co., Ltd., London and Rangoon); Mr. William Keswick, M. P. (of the firm of Jardine, Matheson and Co., London, China, and Japan); Andreas Rickmers, Detmar H. Finke, H. F. Upmann, and H. C. Kallsen, of Bremen; A. Classen of Hamburg; Mr. William Halliday and Mr. A. Dreier, of London.

THE GRAND HOTEL, LIMITED.—An extraordinary general meeting of the shareholders of the Grand Hotel, Limited, was held last month at the Grand Hotel and the special resolution was adopted providing for an increase of the capital of the Company to *yen* 1,000,000 by the creation of Preference Shares to the amount of *yen* 500,000 with cumulative right to dividends at the rate of eight per cent. per annum. It provides also for an issue of Debentures to the amount of *yen* 800,000 at seven per cent. per annum to be secured by pledge of the whole property as it will be when the new buildings are completed and furnished. The Preference Shares will be issued before building operations are begun and the Debentures later, as the reconstruction goes on. The total cost of the new hotel ready for guests is to be *yen* 1,300,000.—*Japan Advertiser.*

SHINAGAWA WHITE BRICKSTONE CO.—The Shinagawa White Brickstone Company held a general meeting of its shareholders last month. The dividend for this term was declared at the rate of 12 per cent. and special dividend at 2 per cent.

BUKIT RAJAH RUBBER CO.—The directors of the Bukit Rajah Rubber Company, Limited, declared an interim dividend of 10 per cent. for the year 1907 on October 31.

JAPANESE SPINNING CO.'S.—The prospects of the foreign loans which the Kanegafuchi Spinning Company and the Fuji Gas Spinning Company were endeavoring to negotiate with the French Syndicate, are said to be bright. These two companies are among the most prosperous and solid in Japan. The sum which each company seeks to raise is said to be 5 million *yen.*

OTARU TIMBER CO.—The 2nd general meeting of share-holders of the Otaru Timber Company was held last month at the Banker's Club presided over by Mr. Uyemura, managing director. The following accounts and distribution were passed:

Gross profit	405,222
To legal reserves	20,000
To special reserves	108,595
To bonus	25,000
Dividends (10% per annum)	219,209
Carried forward	32,218

OSAKA COTTON MILL CO.—The Osaka Cotton Mill Co. held an extraordinary general meeting of its shareholders last month at the Osaka Hotel. The resolution to raise a loan amounting to 1,000,000 yen for the branch factory at Shikwanjima was submitted and passed. The sum is to be invested in the purchase of 1,200 cotton gins, 17,000 spindles and motor engines.

HEVEA RUBBER PLANTING CO.—An extraordinary general meeting of shareholders in this company was held at the company's offices in Singapore on Nov. 5 under the presidency of Mr. C. Sesone. There were also present Messrs. Stanley Arden, J. A. Boyes and the Rev. N. J. Couvreur.

The Chairman then proposed that the following resolution be passed:

That the capital of the Company be increased to $1,700,000 by the creation of 72,000 additional ordinary shares of $17 each ranking for dividend, and in all other respects *pari passu* with the existing ordinary shares. —*Straits Times.—Malay Mail.*

TEBRAU (JOHORE).—Registered September 26th, Skene, Edwards and Gerson, Edinburgh. Capital £30,000, in £1 shares. Objects: To acquire and develop the estate of Tebrau, Johore, to acquire by purchase or lease in the Malay Peninsula or elsewhere estates on which rubber trees have been planted, or which may be suitable for the cultivation of rubber, and to carry on the business of manufacturers of and dealers in rubber of every description. The first directors (to number not more than four) are: P. M. Matthew, F. W. Carter and J. E. E. Corstorphine. Qualification 500 shares. Remuneration, £175 per annum, divisible. Registered office, 5, St. Andrew Square, Edinburgh.—*Malay Mail.*

NORTH HUMMOCK.—The North Hummock (Selangor) Rubber Company has been registered with a capital or £10,000 in £1 shares. To acquire, cultivate, and exploit certain lands, to be called the North Hummock Estate, belonging to the Bukit Rajah Rubber Company, Limited, in the district of Klag, Selangor. Minimum cash subscription, 35,000 shares. First directors (not less than three nor more than six):—G. A. Talbot, H. K. Rutherford, N. W. Grieve, and A. W. Crichton. Remuneration as fixed by Company. Offices, 20, Eastcheap, E. C.

BANTENG RUBBER ESTATES, LTD.—The prospectus has been issued of the Banteng (Selangor) Rubber Estates, Limited, which acquires the Banteng and Puchon Rubber Estates, Selangor, Federated Malay States. At present 360 acres have been planted, and it is proposed with the working capital to be provided by this issue to clear and plant the remaining area. The capital is £50,000 in £1 shares, of which 10,000 go to the vendor, 10,000 are reserved, and 30,000 are offered for subscription. The purchase price of the estates is £20,000, made up of the shares, and £10,000 in cash. The previous vendors receive £5,000 in cash and £10,000 in shares. For the three years to the end of 1910 a 7 per cent. dividend is guaranteed, and the prospectus estimates that after that the dividends will rise from 9 per cent. in 1911 to 37 per cent. in 1915.—*Malay Mail.*

SELANGOR RUBBER CO., LTD.—Messrs. Gibson & Anderson, of Glasgow, the Secretaries of the above Company, have issued the following circular dated the 9th October, by order of the board:—

We have to inform you that at a meeting held to-day the Directors resolved to declare an interim dividend, for the six months ending 30th June last, at the rate of fifty per cent. per annum, being sixpence per share on the 263,000 fully paid shares of 2s each, and three pence per share on the 37,000 shares, 1s paid at that date.

JAVA RUBBER PLANTATIONS, LTD.—The Rubber Plantations, Limited, has a capital of £35,000 in shares of £1 each, of which 19,500 are offered for subscription. The company acquires the Soember Tengah Estate, situated in the Residency of Bezoeki, Province of Djember, Java. The company will acquire the property at £7 10s. per acre for the 2,370 acres, of which 1,634 acres are already planted. During the first year of the company's working rubber, cacao, and pepper will come into bearing in increasing quantities; and the directors consider that the crops of rubber, cacao, and coffee, together with other produce from trees now in bearing, should yield a return sufficient to pay in the first year a fair dividend on the issued capital. The purchase price has been fixed at £17,500, of which £11,500 is to be in cash and the balance in fully-paid shares. No actual promoting profit is paid, but the vendors have the right to an allotment at par of any number up to 7,500 of the unissued shares, which may be applied for within five years.

The subscription list was closed on Oct 8, the issue having been over-subscribed.—*Malay Mail.*

INCH KENNETH RUBBER ESTATES, LIMITED. —Report to the third annual meeting held on Monday, 14th October, within Dowell's Rooms, No. 18, George Street, Edinburgh:—

The directors beg to submit the accounts of the Company for the year to 30th June last. The profit and loss accounts show a balance at credit of that account of £207 8s. 2d. which the directors recommend should be carried forward. The amount of rubber harvested during the past years has been 2,006½ lb. and the sales made have been at the best market price of the day. It is expected that during the current year upwards of 5,000 lb. will be harvested.

THE KOMBOK RUBBER CO., LTD.—This Company has been formed, and is in full working order. As the members of what has been known as the Bangkok Syndicate hold 13,150 shares in the Company, and as 150 shares have changed hands in Bangkok this week privately, there may be some general desire to know something about the Company. The shares are each $10 with $5 paid, and the 150 mentioned sold at $7.50.—*Bangkok Times.*

LANADROS RUBBER ESTATES.—The *Straits Times* learns that the capital of the Lanadron Rubber Estates, Limited, was subscribed thirty times over. Letters of allotment are now being sent out, and the number of shares applied for locally through Messrs. F. W. Barker and Co. was 106,608. In respect of this application, they were allotted 3,500 shares.

With a sum of five shillings paid-up, Lanadrones are quoted on the market at 17/6 premium.

TWO NEW DUTCH RUBBER COS.—Rubber growing and its possibilities begin to attract attention more and more in Holland. Two companies in that line of cultivation have just been floated there. One of them is the Simo, with a capital of 234,000 guilders, which aims at planting in Netherlands India. The other venture will set to work in Siak, a district in East Sumatra. It is capitalized at 200,000 guilders.—*Perak Pioneer.*

KAJANG RUBBER SYNDICATE.—Kajang Rubber Syndicate and Sempan Mining Company have been voluntarily wound up, says the *Free Press.*

VALLAMBROSA RUBBER CO.—The Vallambrosa Rubber Company's interim dividend of 25 per cent. was announced in the financial press here, but is contradicted. No dividend has yet been declared.

HIGHLANDS AND LOWLANDS PARA RUBBER CO.—The Highlands and Lowlands Para Rubber Co. have declared an interim dividend of 5 per cent.

KOKKO LIFE INSURANCE CO.—The Kokko Life Insurance Company was inaugurated on Nov. 20. The company was recently organized by Counts Shimazu, Omura, Sanada, and Yokohama and other influential businessmen of Tokyo and Yokohama, with a capital of 200,000.

ENGINE BOILER INSURANCE.—The Engine Boiler Insurance Company, promoted by Messrs, Suzuki, Wada, Hihiya, Hamaguchi and other businessmen of Osaka, was chartered last month by the authorities. The new company will have a capital of 500,000 yen in 10,000 shares. Its object is to undertake insurance of engines, boilers and other machinery in various factories except those of railway locomotives and steamships.

KLANANG PRODUCE CO., LTD.—The Klanang Produce Co., Ltd., according to a London cable to the *Ceylon Observer*, has declared an interim dividend of 5 per cent. on the first half of the year's working. The dividend for the whole year 1905 was 7½ and for 1906 it was 15 per cent. The rubber estimate for the current year is 25,000 lb. The Company has a total acreage of 2,460 of which 1,195 acres are planted—745 acres with rubber alone and 449 acres with rubber, coffee, and cocoanuts.

DELI BANK.—The statutes are announced of the Deli Bank, established at Medad, which purposes carrying on all kinds of banking business, such as granting money against guarantee, discounting of trade and auction drafts, business in coins, bullion, and drafts, granting of advances on produce against documents, consigning contracts, and the sale of produce on account of other parties. The capital amounts to fl.3,000,000, divided into 3,000 shares of fl.1,000, of which 650 are taken and paid up, all by Chinese capitalists in Sumatra and Penang. As directors the following persons will officiate, *viz.*, Thio Tiauw Siat at Batavia, and Tiong Jong Hian at Medan, and three other Chinamen as commissaries.

HOKOKU BANK.—The first installment in the shares of the Hokoku Bank, newly established with a capital of ten million yen, was paid in on the 21st inst. Considering the financial situation this is a very good result.

THE MAATSCHAPPIJ TOT MIJN, BOSCH-EN-LANDBOUWEXPLOITATIL LANGKAT.—The Maatschappij tot Mijn, Bosch-en-Landbouwexploitatil Langkat, have declared a final dividend of Tls. 7½ and a bonus of Tls. 2½ per share, for account of 1907.

THE ASAKUSA BANK.—The Asakusa Bank (capital 600,000 yen) will be incorporated with the Hokoku Bank, now being organized, on the condition that the former bank receives 48,000 shares (12½ yen paid in) of the latter bank.

THE ANGLO-JAPANESE BANK, LIMITED.—The directors will not issue an interim report and balance-sheet for the past half-year, as, in their opinion, it is preferable to allow a full year's working to elapse before publishing further figures. They say that the result of the working since the date of the last balance sheet and the estimates that can be formed of current business show that the bank is now earning profits, after payment of all expenses.

AWAJI INDUSTRIAL BANK.—A new banking corporation styled the Awaji Industrial Bank has been organized at Zumoto, Awaji province, by Messrs. Fukami, Yamamura, Okumura and other businessmen of the place. The new bank will have a capital of 500,000 yen in 10,000 shares, of which 9,000 have been taken up by the promoters and the remainder are to be offered to the public. The subscription list having been already filled up the company will begin business as soon as the first instalment is closed.

REUTER TELEGRAM CO., LTD.—The Reuter's Telegram Company, Ltd., have declared an interim dividend of 4s per share, being at the rate of 5 per cent per annum free of income tax, for the half year ended June 30th.

TANJONG PAGAR.—In connection with the Tanjong Pagar liquidation a final dividend of $61.76 has been paid, making a total of $761.

D. C. NEWMAN COLLINS.—Consulting Engineer and Architect of No. 29 Broadway, New York City, has recently issued a bulletin which will be found of considerable interest and benefit to parties contemplating the erection of a manufacturing building, warehouse, mill, or in fact anything in the way of an industrial plant. It is a treatise, going into detail various kinds of structures, and the classes of materials and methods employed in erection.

Mines, Mining and Minerals in the Philippine Islands

(Edited by the Bureau of Science, Manila)

THE STONE QUARRY OF MARIVELES

The quarry of the Atlantic, Gulf and Pacific Company is situated on Hombre Mountain on the extreme point of Punta Gorda, and about three miles south-east of the town of Mariveles. Señorita mountain lies at the base of the base of the point, about a half a mile N 39° W of Mt. Hombre, and both of the mountains are about 520 ft. in height. In Sisiman Bay, which furnishes a small safe harbor on the east side of the point, a wooden pier has been erected for convenience in loading and unloading launches and scows.

Quarry No. 1 was opened on the south side of the point, the foundations for some of the derricks being constructed in shallow water, on account of the rock forming a cliff at the water's edge. A cableway, made of 2½ steel cable, and a span of 1,500 feet is used to assist in loading the scows.

Quarry No. 2, which is really part of No. 1, extends the working face around the end of the point, and well along the east side, giving in all a working face about half a mile long. There are three loading places in quarry No. 1. and two in Quarry No. 2. Altogether, twenty-five derricks are working along the face, some of which are intermediate, while others are used to load the scows. While but 20 H. P. engines are employed on the derricks, and a 40 H. P. engine on the cable, yet, on account of the ease and rapidity with which it may be handled, a derrick will move more rock than the cable. One derrick can easily load two scows of 600 tons burden each, per day, while the maximum daily capacity of the cable will not exceed 900 tons. Another serious objection to the cable is the long chain used to pick up the large boulders, the swinging of which makes it dangerous for the men working beneath it. Pieces of stone weighing less than 100 pounds are transported in tram cars to a No. 3 Gates Crusher where they are broken into 1½"-2½" size. The crushed rock is then run out on the pier, loaded into small scows and towed to Manila, where it is used for concrete work.

The structure of the different rock faces of the quarry is of particular interest when considering the rock as a building stone. At the north-east side of the point the rock is divided by vertical jointing planes from four to ten feet apart, running in the direction S 22° W. The face there is about 200 feet in height. On the south side of quarry No. 2, the rock face is 100 feet high, besides a ten foot covering of earth, and exhibits a perfect columnar structure. The columns are four and five sided, from sixteen inches to eight feet through, and although they stand nearly vertical break off at an angle of 40° from the horizontal. The working face is in about 150 feet from its original position at the water's edge, and the working floor is about twenty feet above the mean level of the water in the bay.

Quarry No. 1, shows in columnar structure, although in places it seems to have rough parting planes inclined at less than 30° from the horizontal. In the center of the face of this quarry is a space about forty-five feet long by thirty feet high, occupied by soft rock with a great deal of pink gouge. It is reported that this streak has continued the same since the opening of the quarry.

Señorita mountain is composed of the characteristic andesite of the country. At the extreme top of the mountain the rock divides into thin slabs, some of which are less than one inch thick and several square feet in area. The parting planes run in the direction S. 40° W., and are nearly vertical. Farther around the shore, on Sisiman Bay, much darker and finer varieties of this stone occur. The stone of the quarry is too soft for paving blocks, and is reported to wear quite rapidly when used for macadam roads. It should make a good building stone however, and that which shows a columnar structure could be shaped without great difficulty. The remainder of the stone would probably be expensive to cut. The quantity of stone is almost unlimited, although the portion which has the columnar structure appears to be comparatively small. As a whole, the stone is very solid and uniform. Crystals of calcite and chabazite are found in the cavities of the rock, and thin layers of calcite at the parting planes.

About 1500 Filipinos were at one time employed at the quarry, of whom nearly all are permanent residents and live in their newly built nipa houses on the reservation. In addition to these there were between thirty and forty Americans acting as foremen, derrick engineers, store-keepers, etc. An unusually large blast was made in December 1903, as a result of which it is estimated that about 400,000 cubic yards of rock were thrown down by something like fifty tons of dynamite. Considering the amount of rock handled, accidents are few. The workmen appeared to be happy and contented, and the officials of the company express themselves well satisfied with the Filipino laborers.

H. M. ICKIS.

NOTES ON THE MANILA LINE SUPPLY

The two important sources of the Manila supply of lime are (A) limestone quarries near Binangonan, and (B) oyster and other marine shells near Malabon.

(A). The annual output of the Binangonan quarries is in the neighborhood of six hundred tons, nearly all of which is shipped to Manila in a water slaked condition, and is here used almost entirely for mortar making. The product of the Binangonan kilns is a very fat lime which swells to about three times its original volume in slaking. In this condition it sells at Binangonan for ₱0.45 per cavan, (about 80 pounds by weight) and costs to transport to Manila an additional ₱0.15, making the total cost at Manila about ₱0.60 per cavan. Freshly burnt quick lime can be obtained at Binangonan for about ₱1.35 per cavan, or three times the cost of the slaked lime, and in Manila for about ₱1.50 per cavan. The estimated total cost of manufacturing the slaked lime at the kiln is about ₱0.22 per cevan. Transportation per carabao from the kilns to the town of Binangonan cost an additional ₱0.06. Assuming the quick lime to triple in volume in slaking, and the cost of transportation to remain the remain the same for quick as for slaked lime, the cost of producing a cavan of quick lime in Manila would be about ₱0.87 per cavan, or about ₱2.50 per barrel of 230 pounds, affording a profit of about ₱0.60 per cavan at the present market rate.

Owing to the small and irregular demand, the lime is ordinarily burnt when required, then slaked and shipped to Manila either in sacks or in barrels. Very little of the product is shipped in an unslaked condition. So far as the supply of labor and material is concerned, the present operators contemplate no difficulty in being able to increase the output to any amount that may be required in the future.

(B). About six hundred tons of slaked lime are produced annually at Malabon, from marine shells gathered in that vicinity. The product is poorer in quality and brings a lower price in Manila than the Binangonan lime. Like the latter, the major portion of the product is used in making mortar. Part of it however, is also used for white-washing; and a small amount especially prepared for the purpose is used in making the lime paste which is chewed with betel nut. The estimated cost of production of the slaked lime is about ₱0.25 per cavan, and the cost of transportation to Manila is ₱0.05, making the total cost of production at Manila about ₱0.30 per cavan. Its selling price here is about ₱0.38 per cavan.

In addition to the local sources of supply, small quantities of lime are imported annually from foreign countries. According to the monthly summary of Commerce of the Philippine Islands, the total imports of lime during the fiscal year 1905 were only 134 barrels (15½ tons), valued at ₱484.00. This was for the most part an hydraulic lime imported from France, and was used in the manufacture of artificial stone and tiles.

M. GOODMAN.

MINING NOTES

The Division of Mines of the Philippine Bureau of Science is preparing an annual publication giving statistics on the mineral resources and the development of the industry in the archipelago. For the purpose of securing the most reliable information, the co-operation of all the mining men and those interested in any way in the industry is invited. Any information supplied will be held as confidential, as only group totals will be published. The value of this publication published from year to year cannot be at present estimated but it will be a source of information that will show the progress made and interest capital so necessary to the development of the mineral wealth.

The reconnaisance party of the Division of Mines, now in Mindanao, will be joined by Mr. M. Goodman, geologist and mining engineer of the Division, this month. He will join Mr. Warren D. Smith, acting chief of the Division, and Mr. Ickis at Davao and the party will proceed across the island from Davao to Surigao or a point in that vicinity.

H. G. Ferguson of the Division of Mines is in Masbate, making some mineral surveys for the government.

Henry Reeder, an old prospector, who has some valuable mineral claims at Suyos, reports the uncovering of a pocket of free gold there.

Mr. Briggs, who is the pioneer prospector of Northern Mindanao, was in the capital for a few days this month. He has been slowly developing some valuable placer fields during the last five years and is far from discouraged. These fields are located near Surigao.

Reports from Baguio are to the effect that the Bua Mining Co. plant has started operations and a clean-up is expected in a few days. This mill has a capacity of ten stamps with cyanide equipment.

Mr. Hann, the owner of the Never-Sweat claim in the Lubang mining district was in Manila early in the month and reports most satisfactory developments. As the different leads are uncovered, the ore value and the volume increases. He reports similar progress on the Anaconda and the Olympic, in the same group, owned by Messrs. Horn and Lambert.

Governor Betts reports progress in the development of his coal deposits in Batan island and the coal is being supplied several vessels of the coastwise.

The federal authorities have send a large force to the government coalfields in Batan and a 3 ton sample of the carbon has been received by the Bureau of Science for testing purposes.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

		U. S. Currency.
Abrasives.—		
Bort, good drill quality	carat	$ 85 00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2.00
Acids —		
Hydrochloric 20°	lb	1.25-1.60
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18 00
Aluminum, Sulphate Com'l	lb	1,25-1 60
Antimony, needle	"	.07¾-.08
Arsenic, white	"	.06¾-.07¼
Asphaltum.—		
Trinidad	ton	30 00-32.50
California	"	22,50-30 00
Bleaching powder, 35%	100 lb	1 25-1.40
Blue Vitriol	"	6.00
Bone Ash	lb	.02¾-.04
Borax	"	.07½-.08
*Caps detonating	M	7 50
Cement.—		
Portland, American	500 lbs. bbl	1.55-1 60
Foreign	" "	2.25-2.90
Rosendale	300 " "	.85
*Green Island	375 lb. bbl	2.65
*Alsen		2.75
*Dromedary		2 50
*Rizal		2.50
*Independencia		2.50
Clay, China.—		
American common	lg. ton	8 50-9.00
Foreign	"	11 50-17.50
Coals.—		
Japanese		5.75
Australian		6.00
Copper	lb	.11⅞-.12
*Dynamite 40%	"	.20
Feldspar ground best	sh. ton	14.00
Fire brick American	M	30.00-40 00
Imported	"	30 00-45 00
Fire clay, St. Louis ordinary	ton	2 50
*Fuse-Blasting	1,000 ft	7 50
Graphite-American ore, common	lb	.01.10
Artificial	lb	.06
Gypsum-Fertilizer	sh ton	7 00
Powdered	sh. ton	12 to-20
Lead	lb	.04⅝
Magnesite-Greece, crude, 95%	lg. ton	7.00-8.00
Bricks, domes	per M	160-200
Manganese, pure, 98-99%	lb	.75
Ore, 80-85%	sh. ton	35 00-60 00
Mercury, export flask	75 lbs	36 00 39.00
Paints and Colors.—		
Litharge American P'w'd	lb	.07½-.07¾
Ochre, Am. Com	sh. ton	8 50-9 00
Paris green pure, bulk	lb	26
Turpentine, spirits, bbl	gal	54-54½
White lead, Am. dry	lb	.06⅜-.07
Am. in Oil	"	.07½-.07⅞
Zinc, white, Am. extra dry	"	.05⅜-.05⅝
Phosphates, Acid	per unit	.65-.67½
Florida hard rock	lg. ton	10.25-10 50
Land pebble 68%	"	5 75-6 00
Potassium Cyanide (98-99%	lb	18-.19
Platinum	oz	27.00-29 50
Platinum, Scrap	oz	20.00-21 00
Spelter	lb	053-.055
Nickel	lb	.045-.065
Cobalt unrefined	"	.20-.40
*Powder, black blasting A	lb	.15
*Judson	"	13½
Pyrite, Domestic Non-arsenical, lump	unit	.11-.11½
Imported non-arsenical lump	"	.14-.14½
Imported, arsenical	" "	.13-13½
Saltpeter crude	100 lbs	4.62½-4¾
Silica, Lump quartz	lg. ton	2 50-4 00
Ground quartz, ordinary	"	13 00-15 00
Glass sand, ordinary	"	2 75
Silver	oz	.61⅜
Sodium cyanide (100% KCN)	lb	.18-.19
*Steel, octagon drill	lb	.14
Sulphur, Louisiana prime	lg. ton	19.00-19 50
Roll	100 lbs	1 85-2.15
Flowers sublimed	"	2.20-2 60
Talc—Domestic	sh. ton	15 00-25.00
Italian, best	"	35 00-40.00
Tin	lb	.31½
Zinc,	"	
Dust	"	.05¾-.06

*Manila quotation.

METALLURGICAL DEFICIENCIES OF MANCHURIAN COALS

In a study of the Far Eastern Industry, the "Viestnik Finanssoff" devotes a chapter to the coalfields of Manchuria, etc., and their relation to the metal industries of those parts. It begins by saying that the Dzhalainorsk coal mines are the only ones exploited by the mining department of the Eastern Chinese Railway from the Transbaikal frontier —Manchuria Station—to Kharbin. They produce only brown coal. Being the only coal mines in the whole northwest area of Manchuria, they rendered immense services throughout the whole of the late war. The description of this coal is very unfavorable, however, and it is judged to be quite unsuitable for smelting purposes, which is the more tantalising in that the Great Kinghan abounds with various metalliferous ores, including much iron. To deal with these metals it is proposed to lower the railway tariff for coal from Ussurisk and the island of Saghalien, the new stringent mining regulations instituted by the Chinese alone preventing the initiation of a metallurgical industry in Manchuria.

The eastern and southern parts of Manchuria, abutting on the Russian railway, are favoured in the matter of coal beds. There are the already-worked Utzimich beds (there are beds similarly named the Chinese Eastern Railway), Tandzyatun, and Schi-Bei-Line. All three are typical Manchurian brown coals. Besides the coals worked for the Chinese Eastern Railway Company's locomotives exclusively (for the boats on the Sungari, etc., use wood fuel) there is brown coal near Kirin, in the upper La-Nin-He river, constituted very like the bituminous brown coal of liqueous origin. This coal, likewise, is not good in quality. But there are two better coals found—one on the River Kule, near San Sin, the other south of Ninquiti, near Lake Beiehu. Both these coals belong to the inferior classes of coking coal; but all the same they yield a coke light, friable, gritty, and giving much ash, and its high percentages of sulphur makes it unsuitable for smelting purposes. The Chinese factories that produce malleable iron use this coke, burning it in heaps or in a primitive form of oven; but the resulting iron is so inferior that even the natives do not like it or goods made therefrom. The Fuschun and Yantas coal mines that have passed into the hands of the Japanese yield similar coal. Summing up all the available data in Manchurian coal, one is inexorably driven to the conclusion, says the article, that Manchuria is very poorly provided in all respects as to coal, and contains none at all that is valuable—be it for locomotives, or steamers, or for smelting purposes of any kind. In fact, Manchuria may be said to be almost wholly unprovided with any kind whatever of metallurgical coal. All this points to the need of developing the fine coking Suchan and Saghalien coal, as well as the anthracite of Suchan, etc., which is the more important in view of the close interest taken at present by foreigners in the metallurgical possibilities of Manchuria. In proof of the importance of this, it is shown that in the first three months of 1907 Japan exported into Manchuria as much as 75,000 tons of coal. Manchuria's metallurgical era is at hand. China is waking up, Japan is seeking ore, and Manchuria is already buying Japanese and English coal inferior in quality to the Ussurisk sorts, which lie so near to the market where they might be sold.—*Mining Journal.*

QUICKSILVER IN CHINA

The latest methods of mining and smelting quicksilver ore in Kweichow, China, are described in *Cassier's Magazine* (June, 1907). The principal and most extensively worked deposits in this province are the Wan Shan Chang mines, and according to the best available information they have been worked since about 1358. They are situated in the prefecture of Toon-Yen in the province of Kweichow, apout 1324 miles from Shanghai.

Up to about 30 years ago, when gunpowder was introduced into the district, the mode of mining was by hammer and gad, and in the larger workings rock was broken by means of fire. In mining the ore is followed up just as it occurs, with an entire disregard for the most elementary rules of mining, which naturally results in a series of workings intricate and tortuous beyond description. In mining the ore, holes are seldom drilled beyond 15 in. deep and the drills used are ¾ in., with steel points at both ends. The powder used is made at the mine. Owing to the defective mixing of the ingredients of the powder and to the inferior quality of the niter the explosive force is not very great, an average shot breaking roughly 100 to 200 lb. of ore. As soon as a shot is fired the miners rush forward to the face to prevent others from stealing the ore.

The mines may be classed as private mines, acquired and worked by private companies, and public mines, which are worked by individual miners. In a private mine the men are employed on day's wages or on tribute, which means that the company assigns a portion of the mine to one or more men, who supply their own tools, explosives, etc, and are allowed to work without any restrictions, on the understanding that the ore mined is to be retorted in the furnaces of the company, which retains a certain percentage of the quicksilver extracted.

In the retorting furnaces there is a system of holes known as percentage holes so arranged that the amount of quicksilver collected in them is about 20 per cent. of the total, in the case of lean ores, and 40 per cent. in the case of rich ores. All of the quicksilver caught in these holes is the property of the owner of the furnace and is the charge paid by the miner for having the ore smelted. Abont 50 lb. of ore is charged into the furnace, which is heated with wood fuel. In the case of rich ores the residue withdrawn from the furnace after retorting is ground, sluiced and the concentrate retorted again. The losses are estimated at between 30 and 40 per cent. of the total amount.

Statistics of production are very unreliable, but during the last years the output averaged about 4000 lb. of quicksilver per month. The product is exported from Toon Yen either in pig's bladders or iron flasks to other parts of China, where it is used for the manufacture of vermilion, for which there is a great demand throughout the Chinese empire.—*Eng. & Min. Jl.*

JAPANESE MINERAL PRODUCTION IN 1906

According to the "Yokohama Chamber of Commerce Journal" for March, the total amount of Japanese mineral output for 1906 was valued at £9,786,140, which is an increase of 33 per cent. compared with that of the year preceding. The following are the particulars:—

Gold (87,647 fine ozs.)	£372,213
Silver	315,156
Copper	2,575,154
Lead	46,739
Bronze	256
Antimony	49,368
Quicksilver	70
Iron	281,032
Sulphuric iron	9,222
Manganese	7,245
Arsenic	64
Phosphorus	1,377
Black lead	2,955
Coal	5,540,996
Carbon	12,924
Petroleum	473,835
Pitch	498
Sulphur	66,374
Zinc	29,354

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAY LIGHTING, POWER, TELEGRAPH LINES, ETC.

NAGOYA ELECTRIC RAILWAY.—This company contemplates the construction of a line between Ichinomiya-machi and Gifu by way of Kasamatsu.

F. M. S. TELEGRAPHS.—To facilitate the dispatch of messages over the government lines it is proposed to introduce the duplex system between Taiping and Ipoh.

JOHORE TELEGRAPH LINE. The line under the control of the railways connecting the F. M. S. System with that of Singapore overland will be completed by the end of the present year.

PENANG ELECTRIC TRAMS.—The receipts for August of the Penang Electric Tramway amounted to $6,274.72 and the number of passengers carried was 202, 523. The average fare was 3.13 cents (silver).

GREAT NORTHERN CABLE NATIONALIZED.—The Japanese government has purchased the cable line connecting Fusan and Nagasaki from the Great Northern Cable Co. The price agreed upon was yen 150,000.

OKAYAMA ELECTRIC POWER PLANT.—The municipality of Okayama has decided to establish an electric light and power plant as a municipal enterprise to cost yen 2,150,000. Water power will be utilized.

MANDALAY TRAMWAYS.—The lieutenant governor has approved the granting of a franchise to Mandalay capitalists to build a system of tramways from Mapaya in the district of Mandalay to connect with the Obo quarter of the city of Mandalay.

CHINESE POSTAL AND TELEGRAPHS.—The Board of Communications has decided to take over the telegraph system and inaugurate a complete system of postal service throughout the empire. Telegraph tolls will be paid with stamps according to the regulations adopted.

AUSTRALIAN FLYING MACHINE.—Mr. Thompson, an engineer of Perth, West Australia has invented a flying machine which will be entered in the Daily Mail's airship race, from Manchester to London. It has a gyroscope feature, one of the wings revolving to the right and the other to the left.

WIRELESS IN INDIA.—The government of India has approved of the installation of a wireless service between Mergui and Victoria Point to connect with a land line between Victoria Point and Maliwan in Lower Burma. The Burma government has guaranteed an annual appropriation of Rs. 41,470.

TSUYAMA ELECTRIC LIGHT COMPANY. The businessmen of the city of Tsuyama have organized a company with a capital of yen 150,000 for the purpose of supplying the city with electric light, and power by harnessing the Tsuyama River. This city is situated in the province of Mimasaka.

SIAMESE TRAMWAY CO.—This company is altering their cars so as to give double entrances at either end. This is to make the car available to prospective passengers from either side of the tract and was made necessary by the irregularity of the track and the arrangement of the buildings on either side.

SHIMBASHA CIRCULAR ELECTRIC.—Orders for the material have been placed abroad for the material necessary to the construction of an electric line to be added to the present circular railway connecting Ueno and Shimbasha via Shinagawa. It is announced that the road will be opened to traffic by August next.

BURMA ELECTRIC TRAMWAYS.—This company is endeavoring to induce the natives of Upper Burma to utilize the electric trams by reducing the rates, but the Rangoon press does not believe in the success of the cut since, as it declares, "The Upper Burman is poverty stricken and lives from hand to mouth."

SHIMBASHA-UYENO CIRCULAR ELECTRIC.—The Minister of Communications at Tokio has sanctioned the projected electric car service recommended by the Railway Bureau. As a result the line between Shinagawa and Omori is to be doubled and the inauguration of the projected service will take place in March or April of 1908.

TOKIO ELECTRIC RAILWAY COMBINE.—It has been announced that the Keihin and Yokohama Electric Railways are making arrangements to amalgamate in view of the recently inaugurated competition of the State Railway between Tokio and Yokohama. Under present arrangements the government charge is 40 sen against 53 sen by the other roads.

TOKYO ELECTRIC WATER POWER SYSTEM.—The new water power system of the Tokyo Electric Light Co. has been completed at a cost of 8,000,000 yen and will be utilized about the beginning of the Year. The capacity of the plant is 4,000 H. P. which will be increased to 17,000 H. P. The company will not dispose of its steam generating plant until it is assured that the water power will meet every demand.

BURMA MOTOR TRANSIT.—Capitalists of Mogok, Burma and Rangoon have organized a limited company for the purpose of inaugurating a motor transport service between Mogok and Thabeitkyin. In addition to this company another has been formed in London to establish a similar service in the Northern Shan States. The former company has ordered six large and powerful climbing cars and the latter company has also placed orders for equipment through the firm of Messrs. McKenzie & Co. of Rangoon.

SHANGHAI TRAMWAYS.—By the first of February it is believed that the entire system of tramways at Shanghai will be in operation. With the completion of the Garden Bridge the installation of the system will be well on the way to completion. The work has been pushed rapidly for months in the International Settlement and the French concession and the center of the city has been put in communication with the outlying sections. The laying of the steel has progressed most favorably toward completion. Some delay will be experienced waiting for the completion of the work on the municipal Electric Generating plant in order to have the necessary power.

JAPAN ELECTRIC RAILWAY NEWS.—The Home Minister gave permission, dated the 14th inst., to the Tokyo Railway Company to lay out 22 tramway lines in the city and 2 in the suburbs, in addition to those already sanctioned.

The Minister has rejected the following applications to construct tramways:—

Asakusa Electric Railway (promoted by Mr. Senzo Matsumoto and 26 others.)

Johoku Electric Railway (Mr. Ko Takeda and 7 others).

Jo-jin Electric Railway (Baron Terauchi and 16 others).

Tamagawa Electric Railway (Extension line).

Tokyo Circuit Electric Railway (one by Mr. Kunoki and 24 others and the other by Viscount Yuri and 57 others).

RAILWAYS AND RAILWAY SUPPLIES

CANTON-HANKOW-RAILWAY.—An effort is being made to have the name of the Canton-Hankow Railway changed to Kuangwu Railway or the Canton-Wuchang Railway.

THE TOBU RAILWAY.—The Kawamata section of the Tobu Railway which connects Tokio and Kawata was completed last month and the entire line opened to traffic November 10.

CENTRAL EASTERN RAILWAY.—The damage to the Otsuki-Sasago section of the Central Eastern Railway caused by the floods has been repaired and traffic was resumed at the end of November.

JAPAN RAILWAY REVENUE ESTIMATES.—The Japanese government places the estimates of revenue from telegraphs at yen 38,000,000 and from railways at yen 45,000,000 for the next fiscal year.

KUALA LAMPUR RAILWAY DEPOT.—It is reported that the estimate of $500,000 for a new central station at the capital of the Federated Malay States has been cut by the High Commissioner to $300,000.

KOREAN RAILWAYS.—Surveys have been made for a branch line of the Seoul-Fusan Railway to Mokpo and the authorities are considering the construction of a railway connecting Gensan and Chinnampo.

SOUTH MANCHURIAN RAILWAYS.—The terminus at Nikutung is to be changed to the new street of Yingkow. The new station is to be built at a point between Chiyoda and Asahi-machi and will include a space of 50,000 tsubo.

PAKNAM R. R. BANGKOK TERMINUS.—Bids for the construction of a two story brick building at the terminus of the Paknam R. R. were opened the last of October and the contract awarded, the price being about Ticals. 20.000.

SZECHUEN RAILWAY.—The board of communications at Peking has been advised that the construction of the Szechuen Railway will commence within the year. The Hupeh section of the road will also be started before the end of the year.

KIRIN-CHENCHOW RAILWAY.—The cost of constructing the railroad from Kirin to Chenchow is estimated at Tls. 2,600,000, half of which will be borrowed from the South Manchurian R. R. and the balance furnished by the Board of Revenue.

MINATO RAILWAY CO.—This company has been organized with a capital of 250,000 yen for the purpose of constructing and operating a railway between Mito and Minato. This road will tap one of the most productive fishing centers in Ibaraki prefecture, Japan.

THE HUNAN RAILWAY.—The survey between Kueiyuan and Changsha has been completed. As it did not include the city of Shangtan, the gentry there have decided to raise one million taels to participate in bearing the outlay for construction so that the road will include their city.

OKAYAMA AND UNO BAY RAILWAY.—The surveys of this proposed railway have been completed for a distance of over 20 miles and it is expected that the expropriation of the land involved will have been concluded and construction work commenced by November of next year. This road is in Bizen province.

THE TOBU RAILWAY.—This company has decided to abandon its present line which connects Mikuriya and Ashikaga in the district of the same name by way of Yamabe and Keno, and will construct a new line from Mikuriya to Isezaki in Gumma prefecture where it will join the government line.

SUCHOW-NINGPO-HANGCHOW RAILWAY.—Notwithstanding the opposition on the part of radical Chinese to the floating of the British loan for the construction of this railway, it is understood that the Chinese foreign office will be obliged to carry out the conditions of the contract entered into with the British and ignore the anti-foreign agitation.

STANDARDIZING THE SOUTH MANCHURIAN RAILWAY.—The inroads made on the traffic to Kirin and Mukden by the Chinese Eastern and Peking-Mukden R. R. especially in the transportation of bean-cake, has influenced the management of the Southern Manchurian R. R. to increase the carrying facilities of that road. Accordingly it has been decided to complete the conversion of the entire line to a standard gauge as soon as feasable.

KUANCHENGTSE-KIRIN-ANTUNG RAILWAY.—Japan is insisting on the early settlement of the questions arising in regard to the construction and control of the railways and telegraphs in Manchuria and particularly those clauses of the Japan-Chinese agreement affecting the railway from Kuanchengtse to Kirin and Antung. Peking has taken the matter under advisement. Japan has also asked for an early survey of the road by deputy-surveyors representing the respective countries.

CHINESE FOREIGN RAILWAY LOAN.—The viceroy at Mukden has been authorized to float a loan of Tls. 40,000,000 to be invested chiefly in railways and other productive enterprises. He will also establish official banks in the Eastern Provinces. The loan will be utilized particularly in the construction of the Hsunmintun-Amur Railway which will begin in March and in addition to this when arrangements are completed for the construction of the Kuanchengtzse-Kirin Railway, part of the loan will be invested therein.

SAN-NING RAILWAY.—Of the 50 miles of this railway about 20 miles will be completed at the end of the year and put in operation. It was expected that the street would be laid by the middle of December as far as San Ning City but this work will probably take another month. It is not certain that the construction of the balance of the road will be expedited at this time as some difficulty is being experienced in raising the necessary funds. Kung Yih, the starting point of the line was recently visited by a typhoon and fire that resulted in serious damage.

CHINESE IRON INDUSTRY.—The Chinese government is encouraging the manufacture of railway steel and supplies and it has been found that the product of the plants on the Yangtsze that supplied the rails for the Hankow-Peking Railway has met the requirements of railway practice. A large plant will be constructed next year for the manufacture of rolling stock and structural steel at Han-yang. The low cost of labor and the availability of the coal fields promise to make the enterprise a success and particularly so since the home demand in the next few years will be enormous.

JAPAN'S RAILWAY PROGRAM.—The new Government railway lines expected to be completed and open to traffic within the coming five years are as follows:—Niekawa-Miyanokoshi section (11 m. 4 c.) and Miyanokoshi-Mitomeno section (26 m. 5 c.) of the Central Eastern line to be completed in March, 1912; Mitomeno-Sakashita section (5 m. 4 c.) the same line in September, 1909; Hitoyoshi-Yoshimatsu section (20 m. 9.) of the Kagoshima line in September, 1910; Yatsushika-Shirosaka section (15 m. 3 c.) of the Yin-yo line in May, 1912; Ayabe-Sonobe section (26 m. 1 c.) of the Maizuru line and the new Okayama-Uno line (19 m. 3. c.) in September, 1909.

JAPAN'S RAILWAY BUDGET.—The railway expenditure in next fiscal year's Budget has been reduced by the Financial Department to 26,700,000 odd yen for new construction and 28,000,000 yen for improvement work, which totals 54,700,000 yen. The new lines to be constructed next year include the remaining section of the O-u line, Uratomi-Kozumi, Kozumi-Kizaki, Wada-Kozumi, Matsuye-Imaichi sections of the In-yo line, Miyagi-Shiwojiri and Nojiri-Miyagoshi sections of the Central line, Sonobe-Ayabe section of the Maizuru line, Yatsushiro-Hitoyoshi section of the Kagoshima line, Fukagawa-Rumoye and Ikeda Abashiri sections of the Hokkaido line, Naoyetsu-Nadachi and Tayama-Awomi section of the Tominawo line, Okayama-Uno section of the Sanyo line, Kitagata-Niitsu section of the Gan-Etsu line and Usa-Oita section of the Kyushu line.

FORMOSAN GRAND TRUNK LINE.—Progress is reported to have been made on the trunk line in Formosa which runs north and west in the island. The section connecting Takao and Hozan (Fengshan) has been completed and from indications Taipeh in the north and Takao in the south will be connected by next Spring. The survey of a Railway running east and west connecting Taipeh and Giran has been completed and construction will not be delayed as soon as the conditions there improve. It is expected a road will be built connecting Pinan and Bokuseki-kaku, a distance of 57 miles while the savages are being tranquilized. This construction will form one of the items in the program which has been provided for in the appropriation of public works of which yen 5,000,000 is to be spent in constructing the projected routes.

PUBLIC AND PORT WORKS, DOCKS, WHARVES ETC.

COLOMBO WATERWORKS.—The water system of Colombo has been transferred to the Municipal Council by the public works department.

NAYOGA HARBOR IMPROVEMENTS.—This work commenced this month and a big celebration was held December 10 to celebrate the occasion.

CANTON WATERWORKS.—The company has applied to the Canton Bunding Bureau for a site near the Canton-Hankow Railway wharf on which to build its head-quarters.

WHANGPOO DREDGER ARRIVES.—The dredger Colonia destined for use at the Whangpoo Conservancy Works arrived in tow of the tugboat Thomas from Singapore last month.

GARDEN BRIDGE, SHANGHAI.—Messrs. Stolz & Kind was awarded the contract for supplying granite for the Garden Bridge. Tsingtao granite will be supplied and delivery must be had in four months.

FORMOSAN PUBLIC WORKS.—The government will spend yen 4,000,000 in the construction of Takao harbor, this sum to be expended in five years. Yen 20,-000,000 is to be expended within thirty years in draining Hisen.

MOJI DOCKYARD.—The representatives of the French syndicate which is interested in the projected dockyards at Moji have been inspecting the site chosen and it is believed have made a favorable report to their people.

TANJONG PAGAR DOCK IMPROVEMENTS.—The dredger operating at Kuantan has been recalled until the end of the monsoon season. Since July great work has been accomplished, a channel 100 feet wide and 12 feet deep is the result.

HONAM BUNDING BUREAU ABOLISHED.—The Hongkong Telegraph announces that the Honam Bunding Bureau has been abolished as it has been decided to abandon the scheme of bunding the Honam side of the river until after the completion of the new bund on the Canton side

PORT ARTHUR HARBOR IMPROVEMENTS.—The entrance to the harbor of Port Arthur has been deepened so as to accommodate vessels of 10,000 tons. Almost all of the 13 steamers sunk in the harbor during the war have been destroyed and removed. The approach of cold weather will make it impossible soon to continue the work.

FORMOSAN PUBLIC IMPROVEMENTS.—The Governor General of Formosa has recommended the floating of a loan of yen 30,000,000 for the purpose of constructing harbor works at Keelung and Takao, the building of a railway between Taipeh and Giran and the inauguration of extensive irrigation works. It is estimated that this work could be spread over a period of 20 years.

EASTERN RUSSIA FORTIFICATIONS AND PUBLIC WORKS.—It is the purpose of the Russian government to create a port at Nikolaievsk, a point opposite the Northern end of Saghalien and to construct huge barracks at Khabarovsk, an inland town on the Amur River about midway between Vladivostok and Nikolaievsk. In addition to this Vladivostok will be fortified on a colossal scale. The total cost of these works is estimated at about £3,700,000.

SHIPBUILDING, GENERAL MARINE AND FISHERIES, ETC.

LARGEST WARSHIP.—The Russian government has ordered the construction of a battleship of 22,300 tons at the Baltic Shipbuilding Works.

RUSSIAN EASTERN ASIATIC S. S. CO.—This company inaugurated a service with two steamers between Vladivostok, Shanghai via Yokohama Kobe and Nagasaki, November 20.

KAWASAKI DOCKYARDS. The warship Yodo under construction at the Kawasaki Dockyards was launched November 19. Another warship, the Ibuki constructed at the Kure Naval Yard was launched November 21.

MINDANAO-BORNEO-MENADO STEAMSHIP ROUTE.—A service connecting American, British and Dutch frontiers in the Far East has been inaugurated. The Coast Guard Cutter Jolo of the Philippine Government took the initial trip on this new route last month.

MONGOLIA REPAIRED.—The Pacific Mail liner Mongolia which has been undergoing repairs at the Union Iron Works, San Francisco, has started on her regular run. Over 85 plates were removed and as the work progressed it was found that the repairs needed greatly exceeded the original estimates.

PHILIPPINE ACT TO ENFORCE CONSULAR DECISIONS.—The Philippine government has passed an act providing for the arrest and return to ship of seamen deserting from certain merchant vessels in the Philippine Islands; for the adjudication by Consuls of certain disputes and for the enforcement of consular decisions in such cases.

JAPANESE CRUISER CONSTRUCTION.—The armored cruiser Ibuki was launched from the Kure Naval yard November 21 and the dispatch boat Yodo built at the Kawasaki Yard was launched November 24. The dispatch boat Mogami according to latest advices was expected completed and launched from the Mitsu Bishi Dockyards about December.

TOYO KISEN KAISHA.—This company has purchased two tank steamers to be employed in the oil trade between Japan and Southern California. One steamer referred to was bought from Messrs. Lawther Latta & Co. It is a 7,500 ton tank and cost £81,000. The other vessel purchased was the British steamer Hermions, renamed the Soye Maru. The company has entered into a contract to handle 600 tons of California oil daily.

OSAKA SHOSEN KAISHA.—This company has decided to build six new steamers to be used on its projected Japan-American line. These steamers will have a displacement each of 6,000 tons and will be built by the Mitsu Bishi Shipbuilding and Engine Works at Nagasaki and the Kawasaki Shipbuilding Dockyards of Kobe. Three of these steamers are expected completed by the end of 1908 and to be put in commision at the beginning of the year 1909.

JAPANESE MARINE DEVELOPMENT.—There has been conspicuous progress and development of the mercantile marine since the late war. During the foregoing twelve months 92 steamers and 208 sailing vessels were built, purchased or chartered abroad, their tonnage aggregating 106,924 and 12,865 tons respectively. At the end of September last the total stood as follows: 1,560 steamers, tonnage aggregating 1,115,307 and 4,188 sailing vessels, tonnage aggregating 356,350.

PENANG SHIPPING CO.—The Singapore Free Press states that while little is known of the progress made by the Penang Shipping Company the following list of vessels are believed to have acquired by the company with dates of launching respectively.—Mary, Austin (1865); Avagyee (1869); Tawtong (1889); Petrel (1873); Vidar (1871); Janet Nicoll (1884); Rotorua (1876); Fitzpatrick (1869); Jin Ho (1886); Pin Seng (1881); Ban What Soon (1881); Cornelia (1878); Perak (1903).

JAPANESE GOVERNMENT RAILWAYS SEA SERVICE.—In consequence of railway nationalization the number of steamers belonging to the Imperial Railway Bureau has greatly increased of late. To provide for further enlargement of the navigation business and its better unification the authorities are said to have decided to establish an independent section for transaction of shipping business which is at present being conducted by the traffic section of the transportation department. The existing fleet consists of the following steamers:—*Iki* (1,680 tons), *Tsushima* (1,679 tons), *Ekasan* (1,600 tons), *Tamamo* (223 tons), *Kojima* (223 tons), *Asahi*, (24 tons), *Itsuzushima* (70 tons), *Oseto* (189 tons), *Shimonoseki* (189 tons), *Hankaku* (760 tons).. No. 1 *Hashidate* (58 tons), No. 2 *Hashidate* (170 tons), besides the *Miyajima*, *Hosoye*, *Kokado*, *Tamashima* and No. 1 *Yura* all of smaller tonnage. There more steamers are now in course of construction at home and in England, they being No. 2 *Hankaku Maru* (800 tons), *Tamura Maru* (1,500 tons), and *Hirafu Maru* (1,500 tons).

FLOATING CRANE FOR THE KAWASAKI DOCKYARDS.—A contract for a large floating crane for the Kawasaki Dockyard, Japan, has been received by Messrs. Cowans, Sheldon and Co., Limited, of Carlisle. The crane is of the non-slewing type, and it will have a maximum outreach of 86 ft. for loads up to 150 tons, and a minimum of 26 ft., the motion being effected by a pair of heavy steel screws connected to the back of the cantilever and driven from the engines. The height from water-level to jib-head pulley at maximum radius is 90 ft. The machinery consisting of a light and heavy lifting gear, will be driven by a pair of horizontal steam engines, the whole being situated in the hold of the barge. The framework of the crane will be of braced form, and of steelwork throughout. The barge, to be built by Messrs. Denny's Limited, of Dumbarton, will be 100 ft. long, 70 ft. wide, and 12 ft. deep, and of steel construction throughout. On the front of the barge there will be two traversing tables to assist in the disposition of oads on the deck. The boiler will be of the multitubular type, 7 ft. diameter and 14 ft. in length. The barge is to be equipped with all necessary auxiliary machinery, including winches and capstans.

MINES, MINERALS AND THE METAL TRADE

TRONOH MINES OUTPUT.—The report for October shows piculs 2659-19 output.

SARAWAK GOLD EXPORT.—During the month of September 7,639 ounces of gold was exported from Sarawak.

SLAK SOUTH MINE. The newly floated Slak South Mine says the Perak Pioneer is being equipped with the most up-to-date labor saving appliances.

HUMAERH PLACER DEPOSITS.—Peking has requested the Russian minister to prohibit the working of the Humaerh River deposit by Russian subjects.

SEMPAN TIN MINE OUTPUT.—A cablegram from Singapore announces that this company reports an output of 8 tons for September and that a rich alluvial deposit has been struck at Bukit.

PERAK MINERS AND PLANTERS ASSOCIATION.—At a recent meeting of the society the truck system and the conditions under which mining leases are forfeited were discussed. The meeting was held at Ipoh.

SAGALIEN OIL WELLS.—A rich kerosene oil spring has been discovered near Neville Bay in Sagalien. Its development by foreigners is being encouraged by the Russian Mining Bureau.

ULSAN MINERAL SPRING CO.—A company has been formed by Japanese capitalists with a capital of yen 300,000 for the purpose of manufacturing various beverages at Ulsan in Kyongsanda, Korea.

JAPAN FIRE PROOF BRICK CO.—This company recently opened a large factory at Taira-machi containing 14 kilns and covering sufficient area to allow the manufacture of 14,000 pieces at one time.

PUSING BAHRU TIN MINES.—The foundation for the new plant is being prepared for the installation of the machinery recently ordered to equip the mines with the most modern outfit.

NIPPON SULPHUR CO.—The Nippon Sulphur Company which recently succeeded to the business of the former Iwashiro Sulphur Company was inaugurated on Nov. 5th.

BELGIAN MINING CONCESSIONS IN CHINA.—A telegram from Peking announces that Belgian capitalists have been granted several large mining concessions and propose to establish a mining school.

RUSSIAN KEROSENE OIL.—The first cargo of Russian kerosene amounting to 65,000 cases, arrived at Hongkong last month and is found to be highly satisfactory to the trade.

MALAY MINE RETURNS.—The following are the mine outputs for the month of October.
The Belat Tin Mining Co. Ltd. 450 pkls.
The Kuantan Tin Mining Co. Ltd. 270 pkls.

COAL IN KWANGTUNG.—The Throne has been memorialized for a grant of 500,000 taels to be used in the development of coal deposits recently discovered in Kwangtung province and said to contain excellent coal.

NEW PETROLEUM REFINERY IN BURMA.—A company has been formed with a capital of Rs. 25,000,000, for the purpose of establishing a plant at Yenanjoung on the left bank of the Rangoon River south of the old Syrian Oil Works.

BANGANAPALLI COPPER FIELDS.—The Indian government has granted a concession of 18 square miles to a syndicate that proposes to develop the rich copper deposits found there. Analyses show 23% copper. This ore is diamondiferous and contains manganese.

JAPANESE MINING COLLEGE.—The authorities at Akita have made provision for the expenditure of yen 450,000 to establish a mining college. The expense will be defrayed out of the prefecture treasury assisted by contributions from the mine owners.

NEW CHINESE COAL DEPOSIT.—News from Dalny announce the discovery of a new coal deposit of vast extent by the Chinese in the neighborhood of Shinkyu to the North of Sinmington. The coal is said to be of a superior quality to Fushun.

FENGTIEN COAL FIELDS.—The collieries at Hsinchu are reported to produce excellent coal and it is the purpose of the Peking government to build a railway connecting Chia-wu-chia and Hsinchu for the purpose of transporting the product.

NATIONALIZATION OF NETHERLANDS-INDIA MINES.—The States General Chamber has passed a resolution in favor of nationalizing the mines of Netherlands India. The state now works coal mines in Sumatra and tin mines in Banka and is prospecting for gold in South Sumatra.

OUTER MONGOLIA GOLD MINES.—The Peking government has refused to approve of the twelve articles of agreement made by the Imperial agent at Urga in an arrangement with the Russians whereby the mines in outer Mongolia were to be worked by Chinese and Russian capital jointly.

CHIEN TANSHAN AND FENGTIEN COLLIERIES.—The Japanese government has agreed to restore these collieries to the Chinese owners. The Japanese have been in control of these properties since the war and it has taken several remonstrances to interest the Japanese in the return of the property.

FUHCHOU COAL MINES.—It is announced that these mines which have been shut down since the war will soon be opened. A joint protest made by the Russian concessionaire and the Netherlands minister with a demand for indemnity if the mines were not allowed to be opened had the desired effect.

NEW TIN DREDGER.—Dredger No. 1 belonging to the Tongkah Harbor Tin Dredger Co. of Hobart, Tasmania is in operation. According to the Pinang Gazette, it is to be used to recover the tin from the bottom of the Tongkah harbor. The soil is excavated by means of huge buckets constructed along the same lines as the big dredger Crab now in operation in Penang harbor.

GOLD MINING IN SOUTH CHINA.—An expert has petitioned the Canton Bureau of Agriculture that it encourage the organization of companies to develop the gold mines of South China on the basis that if the gold in a picul of ore amounted to 1.313 mace that it would make profitable investment for capital utilized in development work. The petition was considered favorably.

JAPAN ALUMINIUM COMPANY.—This company has been experimenting in the manufacture of this metal since the beginning of the year at its factory at Osaka. They have apparently been satisfactory as the company has decided to construct a large factory and manufacture the metal on a large scale. Another factory may also be started at Matsuyama, Iyo province.

KILIN AND AMUR COAL.—An agreement has been arrived at between Russia and China whereby Russia may mine coal at any point along the Trans-Asian railway within a belt 50 li wide and in return Russia agrees not to fell any timber in that region and that while Chinese may mine coal in the region indicated the Russians must not permit any other foreigners to indulge.

KARAFUTO COAL MINES.—It is understood that the Japanese government government is making preparations to develop the rich coal deposits of the island of Karafuto. Of the various mineral products of the island coal seems to be the most important. It is of excellent quality and in some instances the seams are 50 feet in depth. There are three distinct divisions of the coal beds and all sections are easily available for water transportation.

THE ASANIGAWA COLLIERY.—A company is being organized to purchase and operate this colliery which is situated in Futaba district, Iwaki province, and about two miles from the Hirono station on the Japanese coast. The product of this colliery is reported to be of excellent quality and the supply well nigh inexhaustible. The deposits have been worked by private capital but there has not been to date any development of moment.

FUSHAN COLLIERY.—The daily output of the Fushun colliery of the South Manchurian Railway averages between 700 and 800 tons a day. The antiquated methods employed by the Chinese are still in vogue and until more modern methods are adopted the mines

receipts of the main line amounted to $1,570,149, and the expenses in Manila to $689,615, making together $880,533, which at 2s. exchange is equal to £88,053. The profit on working the key line amounted to £1,211 and the profit in exchange to £1,458, while the charges in London amounted to £4,290, leaving as net revenue £86,433, out of which interest has been paid on first mortgage registered stock, £7,500, and on prior lien bonds, A and B, £33,930. In accordance with the deeds of trust governing the respective issues, the redemption was effected in June, 1906, of 190 prior lien bonds, eries A, at 105 per cent., £19,950, and 200 prior lien bonds, series B, at par £20,000. The value of the Philippine currency has been maintained throughout. Over 140,000 tons of rice were imported from China in 1906; and I consider that there is a sufficient area of valuable rice lands in the islands within the zone of existing railways to produce, if put into cultivation, ten times the crop shown in this year's statistics, and that it is only a matter of time for imported rice to be entirely superseded by the home production."

THE F. M. S. RUBBER COMPANIES

The marked success of the many companies interested in the cultivation of rubber in the Federated Malay States is the subject for an interesting and favorable review of the industry by the *Investor's Guardian of London*. "The remarkable success which characterized the reports of the rubber producing companies recently noticed in these columns," says the *Guardian*, "is again the leading feature of the latest reports to hand. Few of the companies have been in existence more than two years, though many are already yielding a substantial return on the invested capital. With few exceptions the anticipations held out in the prospectuses have been fulfilled and in many cases have been exceeded, whilst in some instances the results have been so phenomenally good as to surprise even the directors. These results will probably be vastly improved during the next few years. At present, in spite of the steadily increasing supply, there are no signs of a diminution in price. The demand still more than equals the production and for some years will continue to do so. The present production has been estimated at something like 65,000 tons and the consumption at, widely, 100,000 tons, the deficiency being made up of reclaimed rubber; and as this process of reclaiming is a very expensive one, it is extremely doubtful whether, even if the present production were doubled, any very serious drop would take place in the selling price.

"The Bukit Rajah Rubber Company, in its fourth year, has now reached a stage of substantial prosperity. A net profit has been earned of £20,635, which is an improvement of £15,667 upon that of the previous year, and represents almost 33 per cent of the paid-up share capital. With the small exceptions of £1,500 placed to reserve, and an increase of £300 to £500 in depreciation allowance, the whole of this improvement is used in the payment of the dividend of 30 per cent whilst the carry forward balance is £623 less at £888. Of the 243,580 trees planted, 88,341 were tapped, and gave a yield of 118,982 pounds against a yield of 33,203 lbs. in the previous year. The price, however, was slightly less, being 5s. 3.63d per lb. against 5s. 4.48d. To some extent the cultivation of coffee and cocoanuts has been displaced to make way for the more profitable production of rubber, and the crops of those commodities have consequently fallen. An additional 1,998 acres of adjoining jungle land were acquired during the year, 100 acres of which were cleared for planting. The estimates for the current year are: rubber 142,500 lbs., coffee 500 piculs, and 125,000 cocoanuts.

"The Cicely Rubber Estates has also had an excellent season, and has paid dividends of 20 per cent on the preference, and 10 per cent on the ordinary shares. A good harvest of 19,069 lbs. of rubber was obtained from 8,020 trees, and sold for a net average of 4s. 11d. per lb. The tappable area is at present only 159 acres, but swift progress is being made with development, and, at the end of the current year, it is expected that 814 acres will be under rubber.

"The three succeeding companies, the Langkon North Borneo Rubber, Perak Rubber Plantations, and the Sapong Rubber and Tobacco Estates, have so far not gained admittance to the ranks of dividend-earning companies. Two of them, the Langkon and the Sapong companies, have not yet begun to tap, whilst the Perak company's yield of 16,327 lbs. of dry rubber was obtained from only one-sixth of the total planted area. This realised an average price of 4s. 10d. per lb., whilst the estate expenditure was £1,877. The net result of the season's operations is a net profit of £1,014 which has been carried forward.

"The Vallambrosa Rubber Company, which has been in existence only three years, has reached a stage of abnormal prosperity. The paid-up capital amounts to only £50,000, whilst temporary loans amount to £3,000, and with this capital a profit of £30,241 has been made. This figure is arrived at after charging against revenue the entire cost of buildings and machinery during the year, and the upkeep of the portion of the estates not yet in bearing. Dividends amounting to no less than 55 per cent for the year have been paid and the carry forward is £1,983 more at £6,749. The total rubber harvested was 156,922 lbs. and sold at an average of 5s. 1½d. per lb. whilst the cost of tapping, packing and transport was 1s. per lb. A crop of 215,000 lbs. has been estimated for the current year, and of this total 59,069 lbs. had already been harvested during the 4 months ended 31st July last. The estates are not in the best condition, and, owing to the prevalence of white ants, and the possibility of damage by wind, it has been decided to thin out very gradually."

Coming as this does from one of the most conservative journals of the United Kingdom it should prove a source of the greatest degree of encouragement to the pathfinders of the Federated States and at the same time direct the attention of capital to the opportunities offered in those fertile states for most satisfactory investment.

And the success attained by the pioneer companies is a high compliment to the managers who made the splendid reports possible. The future of many productive areas has been ruined by the failure by bad management of the initial enterprises. Very fortunately this was not the fate of the Federated Malay States in so far as the development of the rubber producing industry is concerned.

NEW TRANS-PACIFIC SERVICE

Messrs. Jebsen & Ostrander of Seattle have announced the formation of a partnership as managing agents for M. Jebsen of Hamburg and have inaugurated a Trans-Pacific service from the coast with at least monthly sailings.

For the present the destination of most of the westward bound steamers will be North China, proceeding there from Puget Sound and the Columbia River, via Japan or Vladivostok. On the return voyage they will take cargo from North China and Japan to California ports as well as to the Columbia River and Puget Sound.

They are also inaugurating a regular coasting service between Seattle, San Francisco, Mexican and Central American ports, and with this combined Oriental, Central and South American service will be in position to name through rates between all points on the Pacific coast and the principal ports in the Orient.

HEMP STATISTICS, 1st JANUARY, 1908.

(Courtesy of C. S. Nicholson, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 31st December 1907		757,209 *Bales.*
Arrivals of hemp at Cebu up 31st December 1907		214,349 *Bales.*
Arrivals of hemp at all Ports up 31st December 1907		971,558 *Bales.*
Stocks on hand in Manila and Cebu on 1st January 1908		63,432 *Bales.*
		1,034,990 *Bales.*
Less corrections on Stocktaking		10,282 *Bales.*
Total		1,024,708 *Bales.*
Exports to all parts to date 30-12-07	887,670 *Bales.*	
Local consumption estimated at	7,679 "	895,349 *Bales.*
Total stocks at Manila and Cebu on 1st January, 1908		129,359 *Bales.*

EXPORT OF HEMP, DECEMBER, 1907.

Date		*Vessel*	*London*	*L'pool*	*Atlantic U. S.*	*Pacific East California*	*Australia*	*Other Pts.*	*Total Bales*
		F'wd:—	275,619	100,545	320,206	53,720	12,965	69,702	832.757
Dec.	1	Senegambia						1,558	1,558
"	2	Tremont	3,624	1,900		1,239		950	7,713
"	"	Kumano Maru					580		580
"	4	Taming						3	3
"	"	Candia		1,500					1,500
"	6	Zafiro	1,025					200	1,225
"	"	Yuensang						100	100
"	7	Changsha					125		125
"	"	Indrasamha.......Cebu			6,525				6,525
"	9	Senagambia.........do.						1,200	1,200
"	"	Manila	26						26
"	10	Tean						200	200
"	14	Rubi						100	100
"	15	Montrose			8,023				8,023
"	16	Tsinan					40		40
"	17	Taming						150	150
"	18	Meinan	1,600					275	1,875
"	20	Nikko Maru						736	736
"	21	Zafiro	1,000						1,000
"	23	Sungkiang.........Cebu		2,477					2,477
"	"	Isla de Luzon	250	1,750				152	2,152
"	27	Loongsang						1,350	1,350
"	"	Rubi						150	150
"	"	Benaven...........Cebu	4,721						4,721
"	"	Montrose............do.			10,225			100	10,325
"	30	Barkston						750	750
"	"	Yuensang						332	332
			287,865	108,172	344,979	54,959	13,710	78,008	887,693
Less B. Hemp her Rubi 1-11-07.			23						23
		Total	287,842	108,172	344,979	54,959	13,710	78,008	887,670

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for January, 1908.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation do do (new)..	1865 1907	$15,000,000	80,000 40,000	$125 $125	$125 $125	g £1,000,000 s $11,750,000 i $250,000	$1,797,167	30-6-07	£1.15/- for half year ending 30.6.07 @ ex 2/2⅞=$16.04 per share	5½	$710 $705 new issue £79
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £12,735 $300,000	$71,293	31-12-06	$2 (London 3/6) for 1903	....	$51
Russo Chinese Bank	18	Rbs. 15,000,000 Tls. 2,000,000	80,000 16,000	Rbs. 187½ Tls. 125	Rbs. 187½ Tls. 125	g Rbs 7,130,500 s Rbs 2,000,000 s Tls. 800,000	Rbs 41,000	31-12-06	9 per cent		Tls. 175
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $219,058 u $401,959	Nil.	31-12-06	$20 for 1906	8½	$245
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 100,000 f Tls. 48,942	Tls. 204,424	30-6-07	Final of 7/6, per share making in all 15/- for 1906 (Tls. 2.65)	6	Tls. 87½ sellers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,00 ,000 g £70,000 f $456,407 j £125,137.15 u $817,628	$1,460,490	31-12-06	Final of $12 making $42 for 1905, and interim of $30 for account 1906	5	$830
Yangtsze Ins. Association, Ld. do. do. (new)	1862 1907	$1,040,000	8,000 4,000	$100 $100	$60 $60	$850,000 j $159,143 $1,988	$394,520	31-12-06	$12 for year ending 31. 12. 05	....	$150 $137½
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $320,449 f $7,616	$362,980	31-12-06	$6 and bonus $2 for 1905	8½	$98 sales
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,256,483	$435,236	31-12-06	$40 for 1905	12	$335
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$365	31-12-06	$1 for 1906	6¾	$15
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $96,988	Nil.	30-6-07	$4 for year ended 30-6-07	10	$40
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $550,000 f $ 86,989	$27,101	30-6-07	$1 for 1st half year ending 30-6-1907	6¾	$29 sal. & b.
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£60,000 i £270,000	£3,694	31-12-06	5/- @ ex. 2-2⅝=$2.24 per share for 1906	3½	$38 $28
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 54,372	Tls. 13,327	31-12-06	Interim of Tls. 1¾ for a/c 1907	12 11	Tls. 46 sellers Tls. 50 sellers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£400,000 i £1871	£172,370	31-12-06	Interim of 1/- (Coupon No. 8) for a/c 1907	4½	44/-
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $32,957	$137	30-4-07	$1.00 50 cts. for year ended 30-4-07	4½ 4½	$24 buyers $12 buyers
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 419,479 e Tls. 62,000 i Tls. 81,200 q Tls. 30,000	Tls. 18,730	31-12-06	Final of Tls. 2 making Tls. 6 for 1906	12½	Tls. 47 sellers
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o $345,741 e $450,000 r $ 56,848	$9,218	31-12-06	$8 for year ending 31-12-06	7½	$109 buyers
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $138,523	31-12-06	$3 for 1897	....	$15 sales
Perak Sugar Cultivation Co., Ld.	....	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 8,935	31-8-06	Tls. 4. (8%) for year ending 31-8-06	5	Tls. 80 buyers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £150,000 h £54,390	£11,556	28-2-07	Final of 1/6 - Making 3/- for 1907 (Coupon No. 9)	7¾	Tls. 15 20 buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £11,358	31-3-07	No. 12 of 1/-=48 cents	....	$8
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$64,124	$10,335	31-12-06	$1¾ for year ending 31-12-06	11¾	$15
Hongkong & Kowloon Wharf & Godown Co., Ld. do. do. new	1886 1907	$3,000,000	40,000 20,000	$50 $50	$50 $50	$550,000 t $23,152 i $30,000	$3,047	31-12-06	Interim of $2 for six months ending June 30th 1907	6½	$55 old $53 new
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500.000	50,000	$50	$50	v $50,000 $100,000	$491,580	30-6-07	$4 for half year ending June 30th, 1907	8½	$98
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 10,459	30-4-07	Int. of Tls. 2½ for 6 months ending 31-10-1907	4	Tls. 78 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	14) 36,000	Tls. 100	Tls. 100	b Tls. 487,210 r Tls. 100,000 p Tls. 190,100 e Tls. 75,000	Tls. 23,117	31-12-06	Interim of Tls. 8 for a/c 1907	8½	Tls. 212 sales
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25.000	Tls. 100	Tls. 100	Tls. 15,000	Tls. 3,388	28-2-07	Tls. 6 for 14½ months ending 28-2-07	6	Tls. 105
Astor House Hotel Co., Ld.	1901	$750.000	4) 30,000	$25	$25	$30,000	$10,908	30-6-07	$2½ for year ending 30-6-07	11½	$20 sellers
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-06	20 per cent. for 1906	....	Tls. 70 sellers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1 000	$9,178	31-12-06	$1.80 for 1906	13	$14 buyers
Hongkong Hotel Co., Ld.	1866	$600.000	12 000	$50	$50	$648,975 r $36,075	$10,925	31-6-07	$4 for 1st half-year ending 30-6-1907	7¾	$104 buyers
Hongkong Land Investment & Agency Co., Ld.	1889	$5.000,000	50.000	$100	$100	e $250,000	$36,915	31-12-07	Final of $3½ making $7 for year ending 31-12-07	7	$102½ ex div.
Humphrey's Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $217,426 e $50,000	$4,621	31-12-07	70 cents for 1907	7¾	$10 ex div.

FAR EASTERN STOCKS AND QUOTATIONS—(CONTINUED.)

STOCKS	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$1089	31-12-06	$2½ for 1906	7	$35 sellers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78.000	Tls. 50	Tls. 50	Tls 869,493 e Tls. 170,000	Tls. 61,978	31-12-06	Interim div. of Tls. 3 per share for % 1907	7½	Tls. 101 buyers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 71,685	Tls. 1,973	31-12-06	Final of Tls. 5 making Tls. 8 for 1906	....	Tls. 100 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,519	31-12-06	Interim of $2 for six months ending June 30th 1907	8½	$48 buyers
COTTON MILLS.											
EwoCottonSpinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 23,276	Tls. 8,807	31-10-07	Tls. 2½ for year ended 31-10-07	5	Tls. 51 buyers [ex div
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $60,000	$14,269	31-7-07	50 cents for year ending 31-7-07	5	$10
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 85,519	30-9-07	Tls. 6 for year end. 30 9-06 (8%)	....	Tls. 50
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	7) 8,000	Tls. 100	Tls. 100	none	Tls. 31,469	31-12-06	Tls. 8 for 1906	....	Tls. 70 sellers
Soy Chee Cotton Spinning Co., Ld.	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	....	Tls. 270 sellers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12-6	£1,299	£638	31-12-06	1s. 3d. for 1906	9	$ 6½
Campbell, Moore & Co., Ld.	1886	$12,000	1,200	$10	$10	$9,000	$653	31-12-06	$3 for 1905	....	$10 buyers
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	none	Nil.	31-12-06	$1 for 1904	....	$10½ buyers
China Flour Mill Co., Ld.	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 50,000	Tls. 889	31-12-05	Final of Tls. 5 making Tls. 10 for 1905	....	Tls. 60 buyers
China Light & Power Co., Ld.	1901	$550,000	50,000	$10	$10	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$6
Do. do. Special Shares	1907		17) 50,000	$1	$1						
China Provident Loan & Mortgage Co., Ld.	1898	a $1,000,000	100,000	$10	$10	$115,000	$855	31-12-06	80 cents for 1906	8¾	$9¼ sales
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	i $60,000 $5,000	$2,974	31-7-07	$1.30 for year ending 31-7-07	7¾	$17 buyers.
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$11,000	$10,804	31-12-06	Interim div. of 50 cents per share for % 1907	8¾	$11½
Hall & Holtz, Ld.	....	$420,000	21,000	$20	$20	$186,000	$15,002	28-2-07	$2½ for year ending 28-2-07	11¼	$21 buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$2,953	28-2-07	$1.00 for year ending 28-2-07	6¾	$15
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $105,000	$4,361	31-12-06	Interim of $4 for half year end. June 30th 1907	9½	$240
Hongkong Rope Manufacturing Co., Ld.	1883	$500,000	50,000	$10	$10	$65,000	$4,212	31-12-06	Interim of 80 cents per share for % 1907	8	$25
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 i Tls. 27,603	Tls. 10,374	31-10-05	Final of Tls. 7½ & bonus of Tls. 2½ making in all Tls. 22½ for 1907	9	Tls. 362½ buyers
Peak Tramways Co., Ld.	1907	$750.000	25,000	$10	$10	none	$2,655	30-4-07	$1 per share for period from 19th Oct. to 30th April, 1907	8	$13
Do. (New)			50,000	$10	$10						$2 bnyers.
Philippine Co., Ld.	1904	$675,000	67,500	$10	$10	none	Dr. P. 34,324	31-12-05	None	....	$5 buyers
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 7,990	31-12 06	Interim of Tls. 3½ for a/c 1907.	7¾	Tls. 107 buyers
Shanghai Horse Bazaar Co., Ld.	1904	Tls. 270,000	5,400	Tls. 50	Tls. 50	Tls. 67,323	Tls. 9,751	31-12-05	Tls. 4 for 1905	....	Tls. 45 sellers
Shanghai Pulp & Paper Co., Ld.	....	Tls. 450,000	4,500	Tls. 100	Tls. 100	Tls. 45,000 e Tls. 8,000	Tls. 3,354	31-12-06	Final of Tls. 5 making Tls. 10 for 1906	....	Tls. 60
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 w Tls. 50,000	Tls. 7,843	31-10-06	Interim of Tls. 5 (25%) account 1907	8½	Tls. 120 buyers
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 85,592	31-12-05	Interim of 15/- for % 1907 (old) Interim of 11/3- for % 1907 (n.)	....	Tls. 335 buyers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $41,934	28-2-06	None	....	$20 sales
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	478	31-5-07	40 cents for year ending 30-5-07	6¾	$6 sellers
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 97
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$349	31-12-06	First year	....	$10½ buyers
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$130	31-5-07	80 cts. on 9,900 ord. shares & $19.80 on 100 founder shares for year ending 31-5-07	8	$10
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 $25,000	$5,482	31-12-06	Interim of 30 cts. for % 1907	7	$10
William Powell, Ld.	1901	$150,000	15,000	$10	$10	none	$41	30-6-07	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$5 buyers

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par.
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 99
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	Tls. 105
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	||	Half yearly, March 31st and Sept. 30th	Tls. 97½.
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

(Closing quotations of the loans: Plus accrued interest)

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 5,725 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 842 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 198 shares unissued.
15 22,250 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government-Kuping Tls. 5,000,000.
* Based on last year's dividend.
** Based on present dividend.
|| Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, December, 1907)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10		25% for year ending 31-3-07	Belat Tin Mining Co., Ltd	8.75	9.00	$ 8.75
1907	$300,000	225,000	22,500z*	10	10			Bruang Ltd	7.00	7.50	7.00
1901	$600,000	600,000	60,000	10	10		20% for year ending 30-4-07	Bruseh Hydraulic Tin Mining Co., Ltd	14.50	15.00	14.50
1903	£400,000	350,000	350,000a	1	1			Duff Development Co., Ltd	1.65	1.75	1.65
1905	£30,000	30,000	30,000	1	1		3/- during 1906	Jeher Hydraulic Tin Mine, Ltd	....	....	5.00
1907	$400,000	375,000	37,500b	10	10			Kanaboi, Ltd	....	7.50	7.50
1901	£60,000	60,000	60,000	£1	£1		1/6 interim during 1907	Kinta Tin Mines, Ltd	10.75	11.00	10.75
1906	£100,000	100,000	100,000	£1	£1			Kledang Tin Mining Co., Ltd	7.00	7.50	7.00
1905	$150,000	99,000	9,900c	10	10	6,000	25% interim for 1907	Kuantan Tin Mining Co., Ltd	14.00	14.50	14.00
1906	£120,000	120,000	120,000	1	1			Lahat Mines Ltd	8.00	8.50	8.00
1906	£30,000	30,000	30,000	£1	£1			Malaya and Siam Corporation, Ltd	....	£1.0.0	£1 0s. 0d.
1906	$450,000	337,500	45,000	10	7.50			Malacca Tin Dredging Co., Ltd	....	7.50	7.50
1906	£250,000	179,500	600,000h	5s-	5s-			Pahang Consolidated Co., Ltd	29/-	29/3	29/-
			100,000	£1	£1			" " " 7% Pref	....	....	nominal.
1904	£120,000	100,000	100,000d	1	1	£6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd	10.00	10.25	10.00
1905	£27,000	21,750	21,750e	1	1		1/- interim during 1907	Rambutan, Ltd	11.00	11.25	11.25
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully pd.*	6.25	6.50	6.25
			150,000	1	18/10		1/- " " "	" " " *Contributory*	6.25	6.50	6.25
1905	£40,000	40,000	40,000	1	1			Redhills Tin Mining Co., Ltd	....	....	12.50
1898	2,500,000	2,500,000	25,000	100	100		52½% for year ending 31-12-06	Redjang Lebong Mining Co	....	....	645.00
1900	$110,000	110,000	22,000	5	5		10% for 1907	Royal Johore Tin Mining Co., Ltd	....	1.50	1.50
1907	$500,000	$500,000	$50,000	10	$7.50			Salak South, Ltd	6.00	6.25	6.00
1907	£80,000	80,000	80,000	1	1			Sempam Tin Mines, Ltd	....	7.50	7.50
1906	$850,000	850,000	85,000	10	10		27½% interim during 1907	Serendah Hydraulic Tin Ming. Co., Ltd	11.00	11.25	11.00
1899	$230,000	230,000	23,000	10	10		5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd	5.50	5.75	5.50
1907	£90,000	70,000	70,000a*	£1	£1			Tekka, Limited	9.50	9.75	9.50
1902	£160,000	149,185	149,185f	1	1		5/- interim during 1907	Tronoh Mines, Ltd	13.75	14.00	13.75
1907	$60,000	60,000	600	100	100			Tunggal Tin, Ltd	20.00	25.00	25.00
								RUBBER			
1905	£150,000	£116,625	46,500g	1	1		10% interim for 1907	Anglo-Malay Rub. Co., Ltd. *Fully paid*	4.0.0	4.7.6	£4 7s. 6d.
			93,500	1	15/-			" " " *Contributory*	2.12.6	....	£3 7s. 6d.
1905	$200,000	105,000	10,500	10	10		12½% interim for 1907	Balgownie Rub. Estate Ltd. *Fully paid*	....	21.00	$21.00
1904	£30,000	15,250	7,000i	1	1			Batu Caves Rub. Co., Ltd. *Fully paid*	....	....	£5 0s. 0d.
			11,000	1	15/-			" " " *Contributory*	....	....	£4. 2s. 6d.
1903	£70,000	61,000	61,000j	1	1		10% interim for 1907	Bukit Rajah Rubber Co., Ltd	....	....	£4. 12s. 6d.
1906	$150,000	125,000	12,500k	10	10			Castlewood Rubber Co., Ltd	....	11.25	$11.25
1904	£12,000	10,500	6,000	1	1		15% interim for 1907	Cicely Rubber Estates Co., Ltd	5.0.0	5.10.0	£5. 10s. 0d.
			6,000	1	15/-		15% interim for 1907	" " " " 5% Pref	....	....	£6 7s. 6d.
1905	£75,000	55,000	55,000l	1	1		10% for year ending 31-12-06	Consolidated Malay Rub. Estates, Ltd	2.10.0	2.17.6	£2 17s. 6d.
1906	£310,000	243,227	181,454m	1	1		5% interim for 1907	Highlands & Lowds. Para Rub. Co., Ltd. *Fully paid*	....	1.19.0	£1 19s. 0d.
			123,546	1	10/-			" " " " *Contributory*	....	1.7.6	£1 7s. 6d.
1906	£180,000	£180,000	180,000	1	1		3% for 1906	Kuala Lumpur Rubber Co., Ltd	....	1.6.0	£1 6s. 0d.
1907	£320,000	201,500	184,000e*	£1	£1			Lanadron Rubber Estates, Ltd	....	....	nominal
			70,000	£1	5/-			" " "	....	13/6	13/6
1906	f. 175,000	f.146,250	80	f.250	250			Langen Rub. and Cocoanut Co., Ltd	....	....	f.300.
			460	f.250	187.50			" " " " " "	....	210.00	f.210.00
			160	f.250	250			" " " " " *Deferred*	....	....	f.250.
1906	$250,000	225 000	22,500n	10	10			Ledbury Rubber Co., Ltd	....	....	$14.50
1895	£100,000	76,100	900,000f*	2/-	2/-		10% interim for 1907	Linggi Plantations Ltd., *Ordinary*	....	9/6	9/6
			10,000	1	1			" " " 7% *Pref*	....	1.0.0	£1 0s. 0d.
1906	£300,000	260,625	115,000	1	1		7½% for year ending 31-12-06	Malacca Rubber Plantations 7½% *Pref*	1.0.0	1.0.6	£1 0s. 6d.
			140,000	1	1			" " Ordinary *Fully paid*	16/6	17/-	17/-
			45,000	1	2/6			" " *Contributory*	....	....	nominal.
1903	£30,000	20,000	20,000o	1	1		10% interim for 1907	Pataling Rubber Estates Synd. Ltd	....	....	£7. 10s. 0d.
1906	$250,000	225,000	22,500c*	10	10			Ragalla Rubber Co., Ltd	....	11.25	$11.25
1904	£20,000	8,794	2,588b*	1	1			Sagga Company Limited	....	....	£2. 10s. 0d.
			12,412	1	10/-			" " "			......
1904	$100,000	100,000	1,000	100	100		20% for year ending 31-1-07	Sandycroft Rubber Co., Ltd	310.00	330.00	$330.00
1898	£30,000	28,150	263,000	2/-	2/-		25% interim for 1907	Selangor Rubber Co., Ltd	....	16/-	16/-
			37,000	2/-	1/-			" "	....	....	nominal.
1903	$250,000	250,000	2,500	100	100			Sing. & Johore Rub. Co., Ltd. *Fully paid*	....	182.50	$182.50
1905	$100,000	100,000	10,000	10	10		7½% for year ending 30/6/07	Sione Rubber Co., Ltd	....	14.75	$14.75
1906	£100,000	93,375	73,500	£1	£1			Sungei Kapar Rubber Co., Ltd	....	....	nominal.
			26,500	£1	15/			" " " " " "	....	....	£2 1s. 0d.
1904	£50,000	28,795	6,920p	1	1			Sungei Way (Selangor) Rub. Co., Ltd	....	....	£2. 0s. 0d.
			35,000	1	12/-6			" " " *Contributory*	....	1.10.0	£1. 10s. 0d.
1904	£60,000	50,000	500,000q	2/-	2/-		55% for 1906	Vallambrosa Rubber Co., Ltd	....	14/-	14/-
								GENERAL			
1894	£5,377.10.0	£4,805	7,688d*	12/6	12/6	£1,300	10% for year ending 31-12-06	Bells Asbestos Eastern Agency, Ltd	5.00	6.75	$6.75
1898	$225,000	225,000	4,500	50	50	112,500	15% & 2½% bon. for yr. end. 31-12-06.	Fraser & Neave, Ltd	140.00	145.00	145 00
1865	$15,000,000	15,000,000	80,000	125	125	£1,500,000u 13,000,000v 250,000w	£2-0s. 0d. for ½ yearending31-12-07	Hongkong & Shanghai Bankg Corptn	....	....	675.00
			40,000	125	125		£1 10s 0d for ½ yearending31-12-07	" " " "	....	....	670.00
1905	$2,400,000	2,400,000	18,000	100	....	40,000	7½% for year ending 31-10-06	Howarth Erskine, Ltd	....	160.00	160.00
			6,000	100	....		7% for year ending 31-10-06	" " 7% *Pref*	....	....	120.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-06	Katz Brothers, Ltd. *Deferred*	....	....	135.00
			4,000	100	100		8% " " " "	" " 8% *Cum. Pref*	....	....	nominal.
1901	$34,000	34,000	3,400	10	10		20% for year ending 31-10-06	Maynard & Co., Ltd	....	....	22.00
1899	$875,000	875,000	6.000	100	100	150,000	5% for year ending 31/12/06	Riley, Hargreaves & Co., Ltd	117.50	120.00	120.00
			2,750	100	100		7% for year ending 31/12/06	" " " " 7% *Pref*	115.00	....	115.00
1903	$600,000	240,000	24,000r	10	10			Singapore Cold Storage Co., Ltd	6.00	6.50	6.50
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-07	Singapore Dispensary Ltd	....	50.00	50.00
1903	£750,000	750,000	400,000g*	£1	£1			Singapore Electric Tramways, Co., Ltd.	6/6	7/-	7/-
1884	$200,000	200,000	2,000	100	100	35,000	20% for year ending 31-12-05	Straits Ice Co., Ltd	127.50	....	127.50
1890	$500,000	500,000	5,000	100	100	400,000 241,075x	5% interim during 1907	Straits Steam Ship Co., Ltd	190.00	200.00	200.00
1904	$40,000	$30,280	2,535s	10	8			Straits Tobacco Factory, Ltd	....	3.50	3.50
			1,000	10	10			" " " "	....	....	nominal.
1887	$3,000,000	2,500,000	250,000t	10	10	1,150,000 1,187,084y	10% & 5% bon. ½ yr. end. 30-9-07	Straits Trading Co., Ltd	....	57.00	57.00

a 50,000 unissued
b 2,500 "
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
g 10,000 "
h { 100,000 " Ord. / 45,500 " Pref.
i 12,000 "
j 9,000 "
k 2,500 "

l 20,000 unissued.
m 5,000 "
n 2,500 "
o 10,000 "
p 8,080 "
q 100,000 "
r 36,000 "
s 465 "
t 50,000 "
u Special Gold Reserve Fund
v Silver Reserve Fund.
w Insurance Fund.

x Sundry Reserves.
y Sundry Reserves.
z 7,500 unissued.
a* 20,000 "
b* 5,000 "
c* 2,500 "
d* 916 "
e* 239,000 "
f* 66,000 "
g* 350,000 5% Debs.

DEBENTURES

Name	Buyers	Sellers	Closing Quotations
Howarth Erskine, Ltd. 6% $ 600,000	....	....	3% prem.
Riley, Hargreaves & Co., Ld. 6% 225,000	....	....	3% prem.
Singapore Electric Tramways, Co., Ltd. 5% 350,000	....	....	nominal
Singapore Municipal 6% 400,000	....	....	20% prem.
" " 5% 1,878,000	....	3%	3% prem.
" " 4½% 1,600,000	....	5%	5% prem.
" " 4% 602,900	....	....	2% dis. nom.
Straits Engineering Synd. Ltd. 6% 45,000	....	....	par.
Tanjong Pagar Dock Board 6% 250,000	....	....	3% prem.
" " " 5% 1,050,000	....	....	1% prem.

YOKOHAMA SHARE QUOTATIONS

Courtesy A. C. Hutton Potts, Share and General Broker, Yokohama, October 1907

STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVE FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2800	-Y- 10	-Y- 10			31-12-06	8%	for 1 year	10 Sellers.
Club Hotel, Ltd.	185,000	1850	100	100	3,000	-Y- 943.52	31-3-07	10%	for ½ year	80 Sellers.
Grand Hotel, Ltd.	500,000	5000	100	100	5,000	-Y- 23,011.87	30-6-07	6%	for ½ year	145 Sellers.
Helm Bros., Ltd.	186,000	3720	50	50	22.500	-Y- 2,916.83	31-12-06	20%	for 1 year	80 Sellers.
Langfeldt & Co., Ltd.	150,000	1500	100	100		Dr. 20 304.15	31-12-06		for ½ year	45 Sales.
C. Nickel & Co., Ltd. †	500,000	20000	25	25		1,470.97	31-10-06	16%	for 1 year	41 Nominal.
Yokohama Engine and Iron Works *	500,000	10000	50	50	50,000	-Y- 12,477.04	31-5-07	10%	for ½ year	85 Sellers.
Oriental Hotel, Ltd., Ordinary }	250,000	3000	50	50	62,285.42		31-8-06	15%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference }		2000	50	50				8%	for 1 year	50 Nominal.
The Union Estate, and Investment Co., Ltd. ‡	1,000,000	10000	100	100			First Year.			105 Sales.

† 285,000 unissued. *-Y- 390,000 issued.

‡ 475,000 unissued. 110,000 unissued.

DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	105 Sales.
C. Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	DIVIDEND PER ANNUM.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 99.50
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 93.20
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 93.20
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 87.10
War Bonds (Gunji)	100	100	5%	June and Dec.	, 87.10
Imperial 5% Bonds (Goburi)	100	100	5%	March and Sept.	,, 84.00
Imperial Government 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 87.00
Kobe Water Works Bonds	100	100	6%	June and Dec.	,, 96.50
Osaka Harbour Bonds	100	100	6%	June and Dec.	,, 96.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 96.00
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 98.00
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 96.50
Sanyo Railway Company Debentures (2nd issue)	100	100	6%	April and Oct.	,, 97.00
Tokyo Stock Exchange Company	50	50	40%	June and Dec.	,, 121.80
Hokkaido Colliery (Tanko) Steamship Company, Limited	50	50	14%	July and Jan.	,, 88.40
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 132.00
Yokohama Electric Tramway Company, Limited	50	50	7%	July and Jan.	,, 43.00
Tokyo Railway Company Limited	50	50	9%	June and Dec.	,, 66.65
Keihin Electric Railway Company, Limited	50	50	13%	June and Dec.	, 73.00
Imperial Hemp Weaving Company, Limited	50	50	13%	July and Jan.	,, 57.55
Kanegafuchi Cotton Spinning Company, Limited	50	50	22%	July and Jan.	,, 101.50
Tokyo Cotton Spinning Company, Limited	50	50	20%	July and Jan.	,, 71.90
Fuji Gassed-Yarn Company, Limited	50	50	25%	July and Jan.	,, 97.90
Nisshin Cotton Spinning Company, Limited	50	12½	—	——	,, 11.30
Fuji Paper Mill Company, Limited	50	50	10%	June and Dec.	,, 50.00
Yokohama Dock Company, Limited	50	33	15%	June and Dec.	,, 65.00
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 85.00
Nippon Sugar Refinery Co., Ltd. (Tokyo)	50	50	20%	June and Dec.	,, 81.50
Dai Nippon Beer Brewery Company, Limited	50	50	15%	July and Jan.	,, 94.90
Tokyo Gas Company, Limited	50	50	15%	July and Jan.	,, 91.00
Kirin Brewery Company, Limited	50	50	8%	July and Jan.	,, 70.00
Tokyo Electric Light Company, Limited	50	50	10%	June and Dec.	,, 66.50
Yokohama Electric Light Company, Limited	50	50	15%	July and Jan.	,, 80.00
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 104 00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 84.00

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THE FAR EASTERN REVIEW
COMMERCE ENGINEERING FINANCE

VOL. IV. MANILA, P. I., SHANGHAI, AND YOKOHAMA, JANUARY, 1908 No. 8.

CHINESE RAILWAYS, MINING AND TELEGRAPHS

The most valuable addition to commercial literature of the Far East is the exhaustive report on the foreign trade of China by Sir Alexander Hosie, Acting Commercial Attaché to His British Majesty's legation at Peking, recently issued from the British Foreign Office in the form of a blue book. Perhaps at no time has the Foreign Office edited a more complete and comprehensive review of the progress of China, covering every avenue of trade and industry.

Under the head of "Telegraphs, Railways and Mining," he writes:

At the end of 1906 the Imperial Chinese Telegraph Administration had a system length 22,419½ miles, with 34,473½ miles of wires and 946.11 nautical miles of submarine cables. Offices numbered 379, of which 62 were open for day and night service and 317 for day service only. The number of instruments in actual use was 768. The staff of the head office in Shanghai numbered 67 and the general staff 3,175, while inspectors, linemen, etc., totalled 2,400.

In addition there are many provincial lines, usually constructed by the Administration, worked and managed independently by the provincial authorities.

The telegraph companies having connections with China are the Great Northern, Eastern Extension, German-Dutch and Commercial Pacific, while a French cable connects Tourane with Amoy, a German cable Shanghai with Kiaochow and Chefoo, and a third cable, partly Chinese, Chefoo with Port Arthur. The last was cut during the war between Japan and Russia and is not yet repaired. China has also frontier connections with Burma, Indo-China and Russian Siberia.

In my report for 1905 I dwelt at some length on railways and mining in China, and, although it is unnecessary to recapitulate what I then said, it may be well to place on record the changes and developments that have since taken place.

In Manchuria the railway lines from Port Arthur, Tairen (Dalny) and Newchwang to K'uan-ch'êng-tzu or Ch'ang-ch'un Fu, together with a few short branch lines which fell to Japan as the result of the war, have been transferred to a company called the South Manchurian Railway Company, which will carry out the terms of the additional agreement between China and Japan of December 22, 1905. The light line built by Japan from Moukden to Antung, 187 miles in length, has also been transferred to the company, which will maintain, work and improve the whole system so as to make it fit for the conveyance of the commercial and industrial goods of all nations. One of the proposed improvements is to duplicate the line from Tairen to Moukden. The line which was built by Japan from the Moukden railway station westward to Hsin-min Fu (Hsin-min-t'un), 36 miles in length, was by an agreement with Japan of April 15, 1907, purchased by China for the sum of 1,660,000 yen and has been incorporated in the Imperial Railways of North China, and the alteration of its gauge, which was 3 feet 6 inches, to the standard gauge has already been practically completed. The line from K'uan-ch'êng-tzu to Harbin and east and west to the Russian frontier remains in Russian hands as the Chinese Eastern Railway, which in Chinese territory is now curtailed to 1,072 miles.

The Imperial Railways of North China had another prosperous year in 1906. The gross earnings for the year ending September 30, 1906, amounted to 12,191,188 dol. 81 c. as compared with 12,943,383 dol. 88 c. during the previous year. Maintenance, rolling-stock, traffic and general expenses and charges amounted to 3,429,942 dol. 68 c., leaving a balance of 8,761,246 dol. 13 c. to be carried to the net balance account. Deducting repayment of loan, payment of interest and other charges, including reconstruction of Boxer damage, amounting in all to 1,953,452 dol. 64 c., there was a balance of 6,807,793 dol. 49 c. Improvements' account amounted to 1,739,773 dol. 57 c., thus leaving a balance of 5,068,019 dol. 92 c. A sum of 3,573,565 dol. 57 c. was paid to the Imperial Chinese Government and 1,857,142 dol. 86 c. contributed towards the construction of the Fengt'ai-Peking-Kalgan line, together 5,430,708 dol. 43 c., swallowing up the balance of 5,068,019 dol. 92 c. and leaving a deficit of 362,688 dol. 51 c., but there was brought forward from the previous year a balance of 5,562,988 dol. 63 c., to which has to be added the part and interest of the indemnity claim amounting to 1,727,688 dol., a total of 7,290,676 dol. 63 c., so that there was a credit balance of

(Continued on page 229.)

THE BUND AT AMOY.—THE LARGE BUILDING IS THE CHINESE IMPERIAL CUSTOMHOUSE, WITH THE OFFICES OF THE OSAKA SHOSEN KAISHA AND BANK OF TAIWAN AT SIDE

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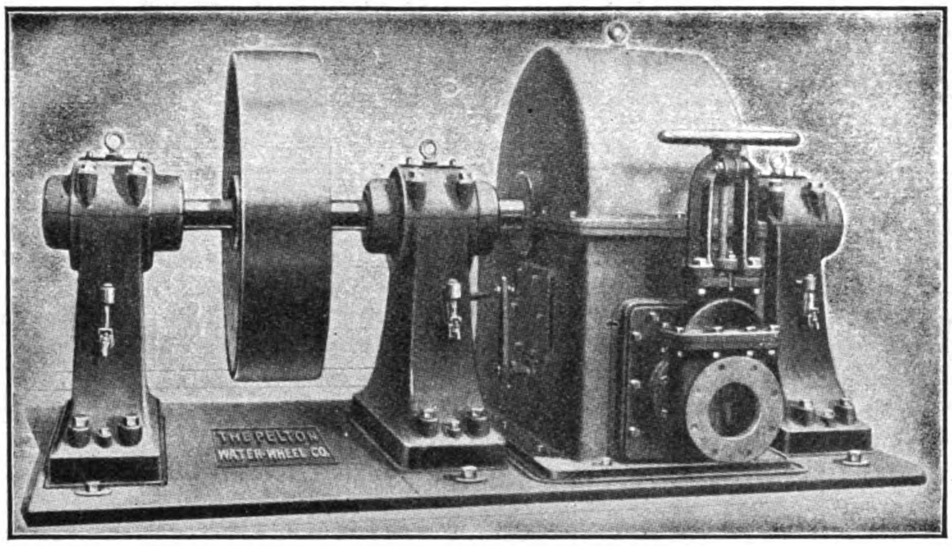

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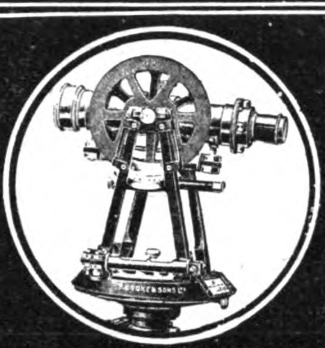

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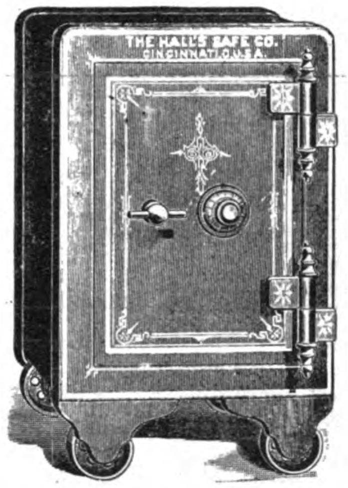

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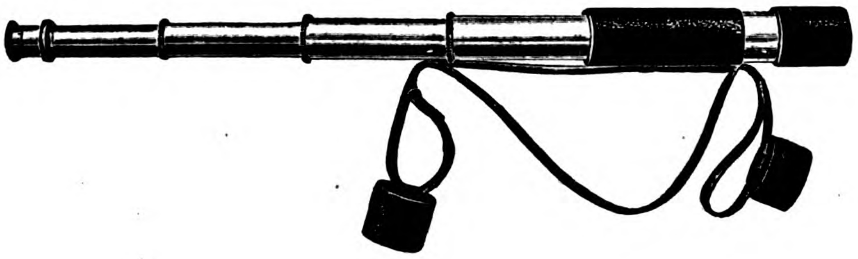

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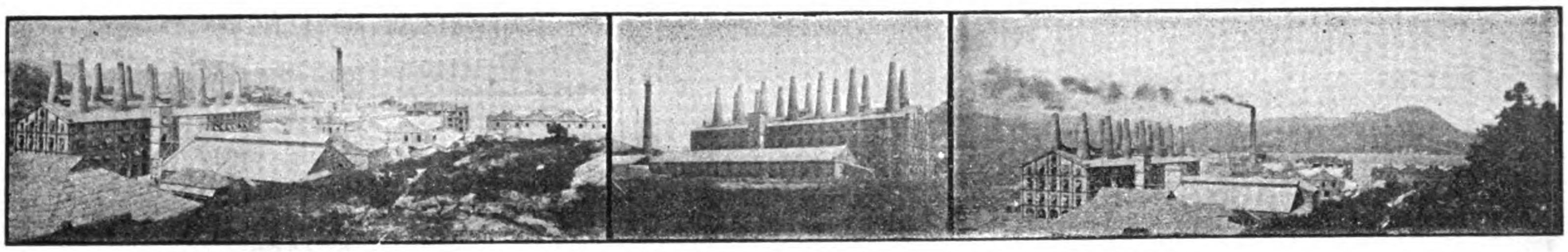

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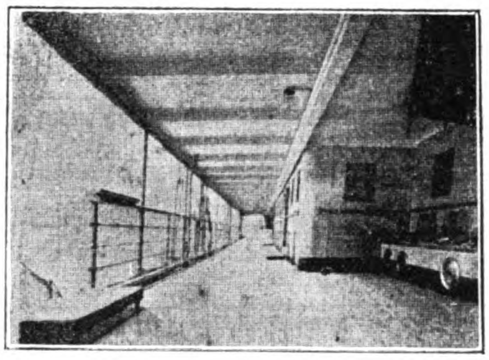

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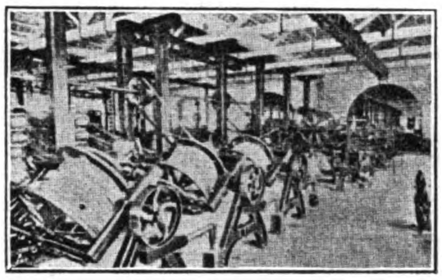

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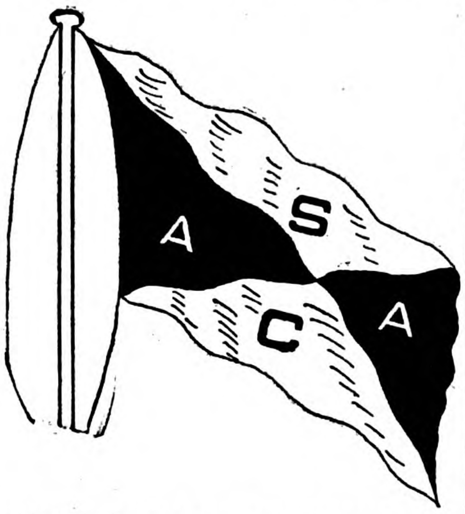

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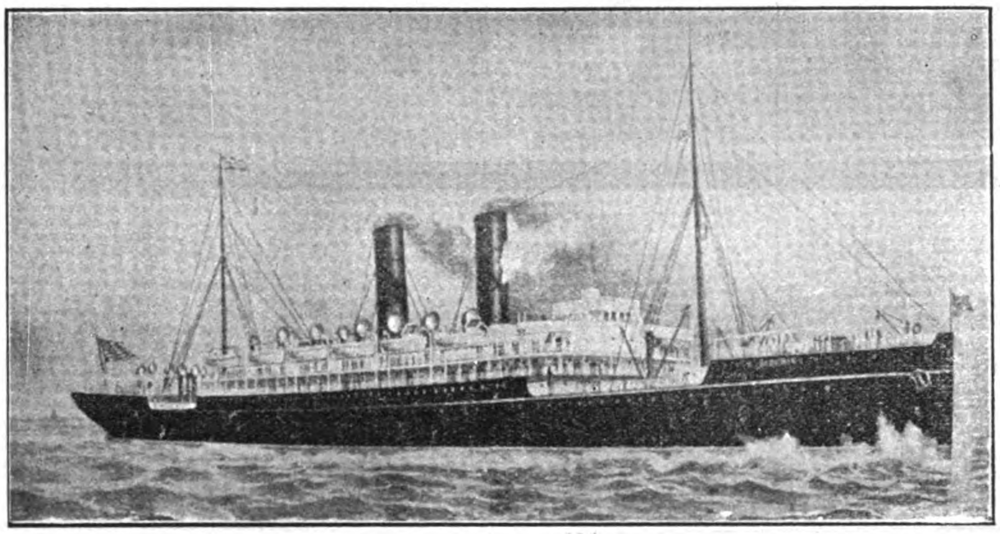

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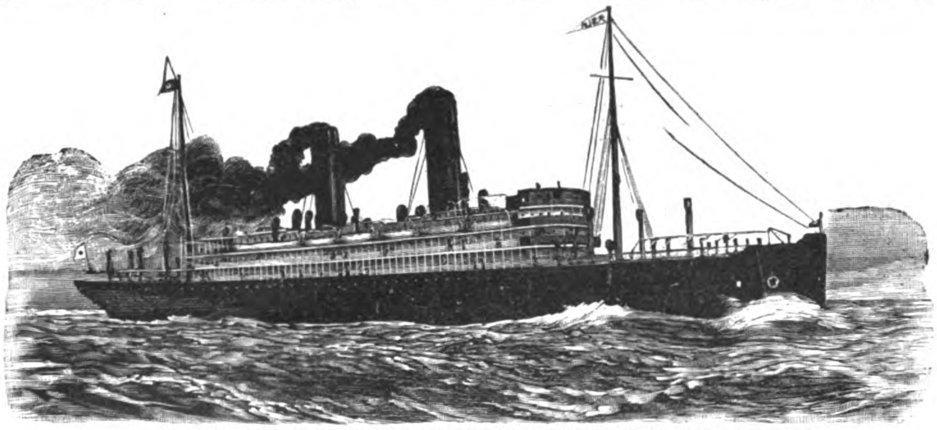

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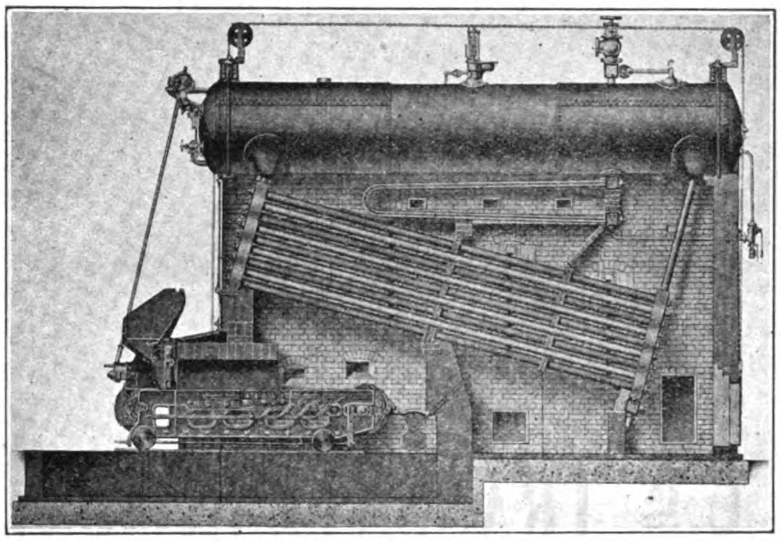

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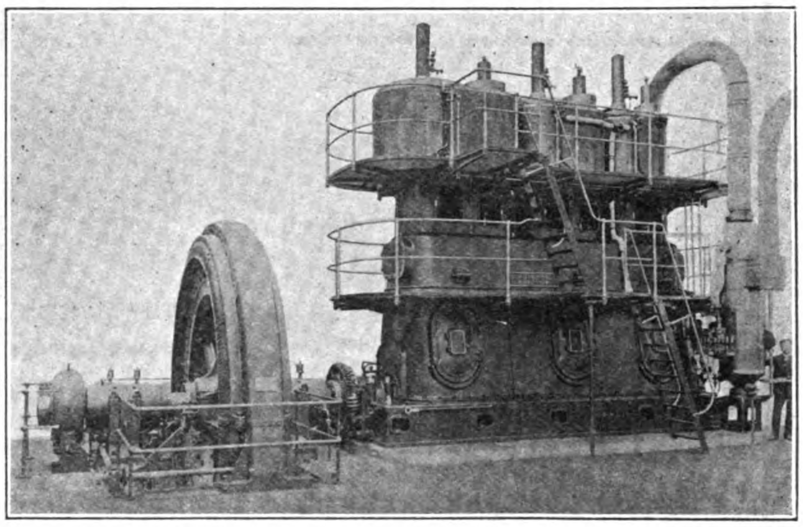

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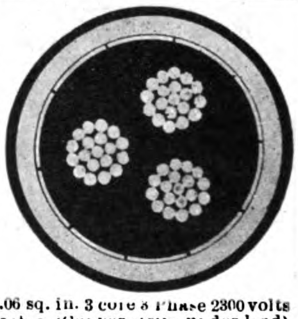

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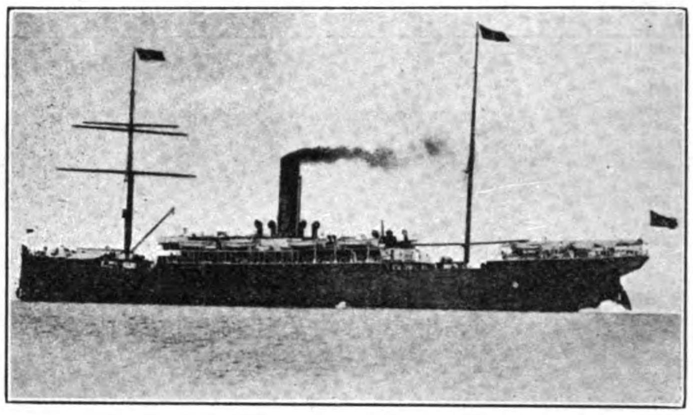

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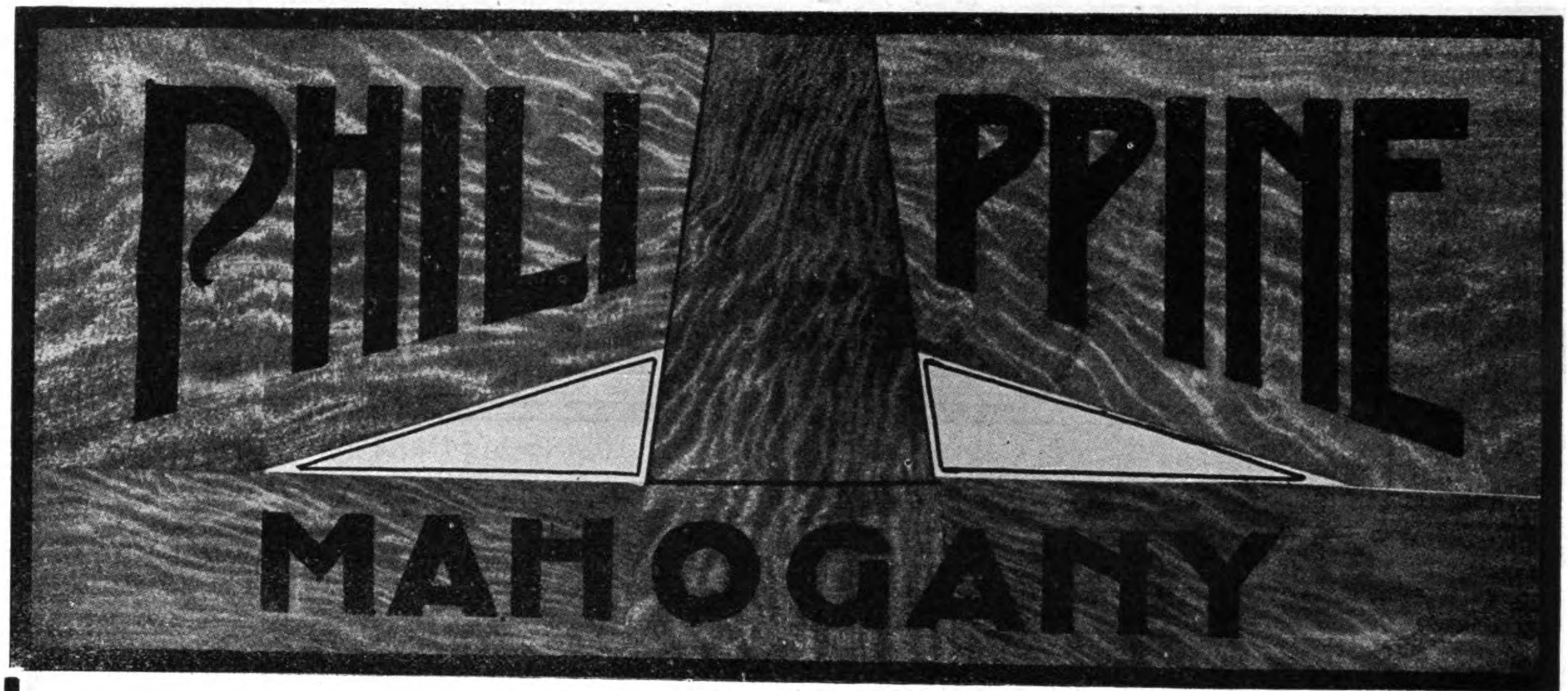

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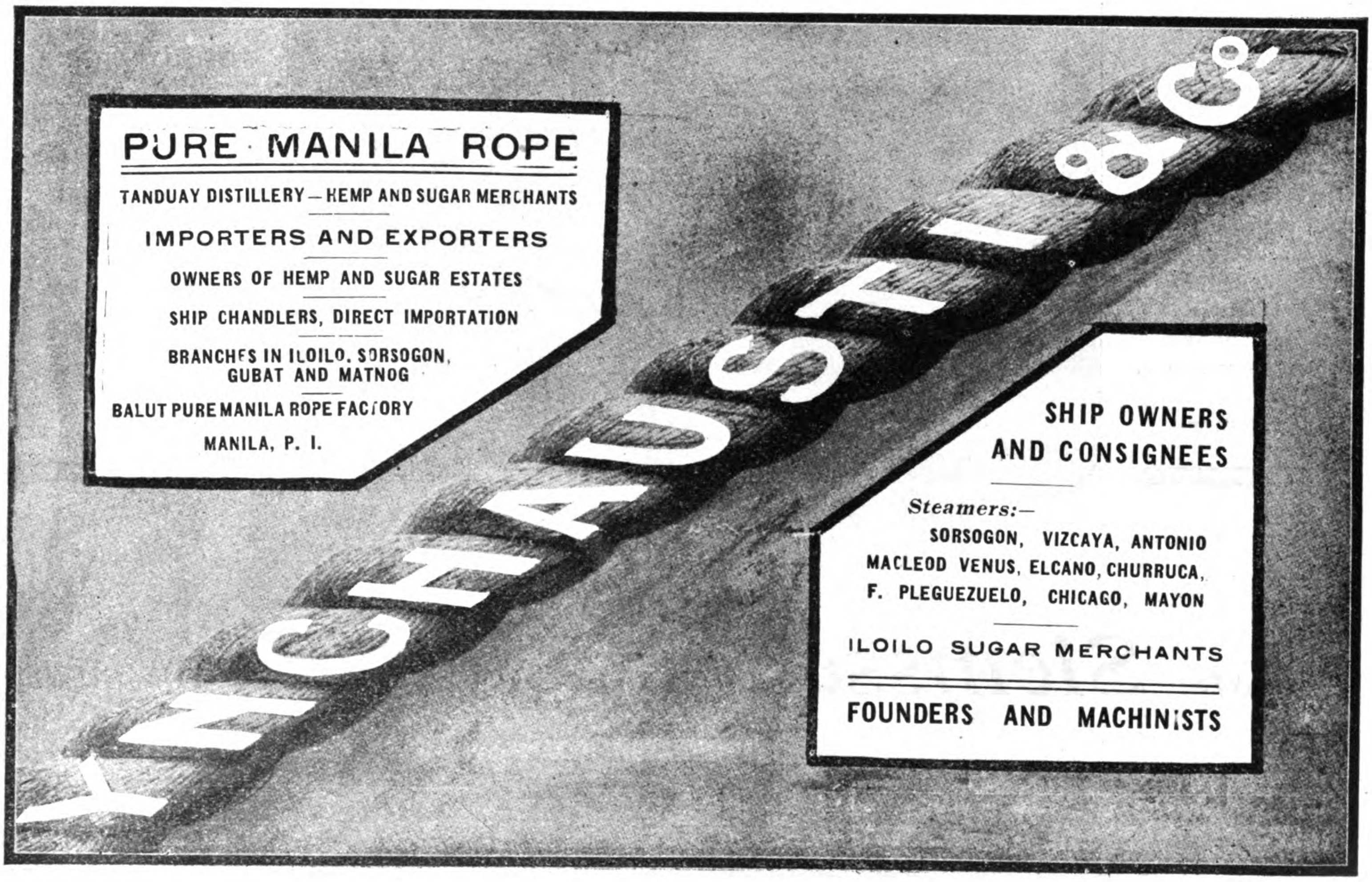

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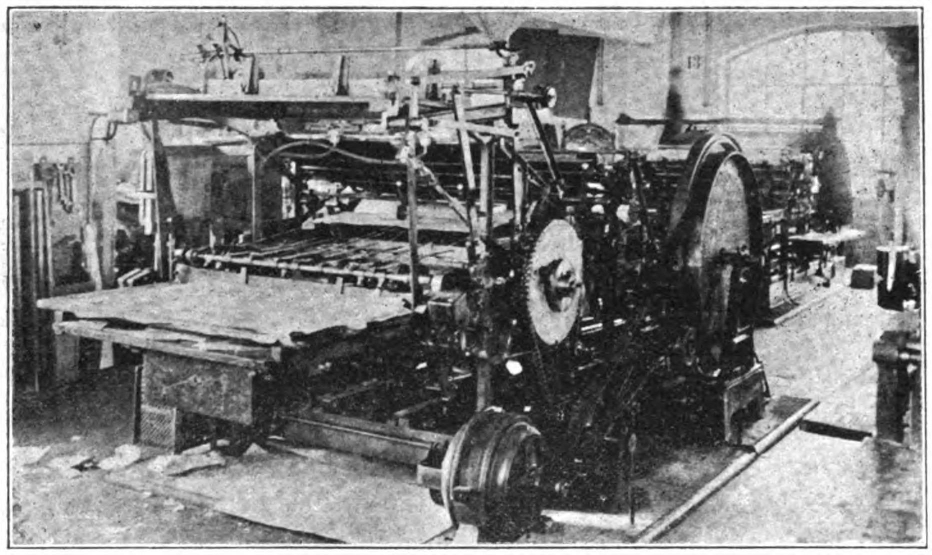

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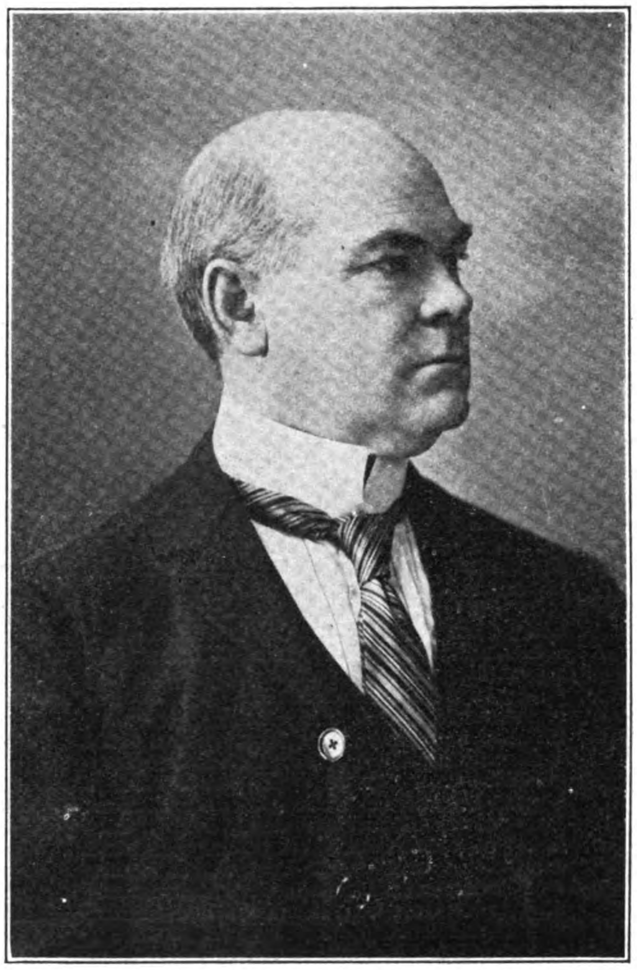
COMMERCE · ENGINEERING · FINANCE

VOL. IV. MANILA, P. I., SHANGHAI, AND YOKOHAMA, MARCH, 1908 No. 10.



The Hon. JAMES FRANCIS SMITH

Governor-General of the Philippine Islands

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

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WINDMILL IRRIGATION

Wind power for the purpose of pumping water to supply irrigation systems may yet serve as the solution of a problem that confronts agriculturalists in many sections of the East where gravity supply is impossible or power too expensive. *The Peking and Tientsin Times* of recent date devotes some space to the experiment being made with success in the public gardens of the French concession at Tientsin. The *Times* says:

"The method of irrigation by means of windmills, which has been adopted in connection with extensive gardens in the French Concession, has proved so successful that another windmill has been erected to assist in the works. This form of water raising appliance is almost unknown in this district, and until the completion if the present one there was only one windmill in use. The water is drawn from the Yang-kin-pang Creek, raised to tanks ten or twenty feet high, and from there it is led throughout the grounds to hot-houses, etc., where required. In addition to their utility, the windmills form a pleasing addition to the landscape."

In this connection an interesting article on the possibilities of irrigation by the use of windmills has been written by Consul Vollmer of Tsingtau. His comments, no doubt, would apply to other sections of China and the East and the advice if followed might serve to mitigate the suffering from famine in sections subject to drought and where large irrigation plants might be beyond the means of those interested. The consul's article is written with a view to encouraging trade in that line of manufacture, but the trader, while serving his own interests has ever been the pioneer missionary, carrying the gospel of modern method into the wilderness to help overcome the obstacles that nature has placed to disconcert and discourage the struggling native industrial. Consul Vollmer says:

"On the whole there can be said to be little or no irrigation in this part of China, as the rains come in the summer months when most of the crops needing water in large quantities are maturing. Wheat and cereals are harvested just before the wet season, and kauliang grows without more attention after the rains, having passed the stages where much moisture is necessary. There are, however, a large number of agricultural products which would probably be classed as garden truck which need constant and careful attention. If the rains are a little delayed or lacking, as is the case this year, all of these plants have to be regularly watered. To accomplish this a water hole is dug in some shallow river bed and the moisture carried to the fields in American coal-oil tins. The well of course is lost the next time the river rises.

"A few years ago this method of irrigation was perfectly satisfactory, but conditions have altered now, an dthe time seems to be rapidly approaching when the work will be done by pumps, windmills, and ditches. A few years ago the field laborer had nothing to do when his crop was growing satisfactorily and could well spare the time to water it when there happened to be a drought. At present there is a great demand for coolie labor in and about Tsingtau for all sorts of street, harbor, construction, and fortification work, and on railroad construction work in the interior. It is thus evident that instead of sitting down and watching his crops mature he can spend a day walking to Tsingtau or some other place where there is work, spend a few weeks at remunerative labor and return home to attend to his harvest.

"If cheap pumps or small windmills were introduced, a whole village might unite in purchasing one, and then one man could easily do what it now takes dozens to accomplish. A well once dug and properly boarded up under a pump or a windmill would not have to be redug after each rain; women and children could keep the irrigation ditches in repair, and the money earned by the men whose labor would no longer be needed in the fields would repay the cost of installing the apparatus in a very short time. Pumps for the market should be solid, heavy affairs, while the windmills should be a small variety, preferably iron or steel, mounted on a steel framework, and of the simplest possible mechanism. To introduce these goods, would of course require the attention of a man on the spot and could not be accomplished by correspondence; but once the first few specimens were in operation, there would undoubtedly be a large and steady demand."

THE CANTON-KOWLOON RAILWAY

The recent discussion over the appropriation to cover the expenditure of the present year in the construction of the Canton-Kowloon line, by the members of the legislative council of Hongkong, developed the optimistic feeling that prevails regarding the early completion of the British section. The progress made during the last year has been highly satisfactory and according to Governor General Lugard's estimate, the entire lines will be completed in May, 1910, at the present rate of construction and it is his belief that in all the cost of the section complete will not exceed £1,000,000. This will be the terminal section of the main line that connects Peking and Kowloon a distance of 1,500 miles and its importance to Hongkong cannot at the present time be appreciated. Its completion assures to Hongkong the control of the trade of a vast territory and its conception reflects the greatest credit on the promoters.

The *Review* does not propose to indulge in the details of the history or the work already accomplished, that being reserved for a future number, but we believe that no enterprise affecting a port of the Far East could have greater significance than the Canton-Kowloon section in its relation to the future of Hongkong. The Chinese section construction has not been so satisfactory as desired and Hongkong watches with great interest every promise of effective activity. The progress made on the British section compared with the Chinese section indicates how much more satisfactorily the work would have progressed on the latter with foreign supervision. Many natural obstacles have to be overcome on the section, and disappointments endured, but these have not discouraged the colony by any means. The work is now mapped out carefully and the survey completed so that every step taken henceforth will count. The tunnel which is the most difficult engineering problem of the work of construction will be 7,156 feet in length, of which 2,242 feet of heading were completed at the end of the year and 465 feet of the lining. Since that time an average of 43 feet has been made and greater progress anticipated as the equipment operates to its greatest capacity.

In this connection the *North China Daily News* says:

"Whatever heartburnings Hongkong may experience in learning that by the end of the current year it will have spent on its railway (if present estimates are not exceeded) a sum of $6,834,061, or more than 25 per cent over and above the original estimate for the completed line, it has one consolation. The railway now being built is as sound an undertaking as human forethought and engineering skill can make it. In spite of the additional expenditure entailed, all short-sighted suggestions to be content with a second-rate railway are being rejected. In no particular would these be more dangerous than in respect of matters connected with station terminus, workshops, facilities for shipping and wharfage; and Sir F. Lugard wisely predicated that there should be no failure to realize the potentialities in this particular of a line that is to be the terminal section of a railway, 1,500 miles long, stretching from Peking through the undeveloped regions of central China to the great southern mart of Canton. But even when the work of construction has been placed on a sound basis and is proceeding smoothly, there remains the not unimportant task of effecting a joint working agreement with the Chinese section from Canton to the Kowloon border. There is no reason to believe that an arrival at a *modus vivendi* will present insuperable difficulties, but it is natural that the Colony should wish to see the matter definitively arranged. The survey on the Chinese line, however, has only recently been completed, and the first sod is not likely to be turned before April. Meanwhile the Chinese authorities have several preliminary questions to settle with regard to the administration of the line and to local control, and until these points

are adjusted, negotiations with the Hongkong authorities cannot be opened. Consequently it is not anticipated that the details of linking up the two lines will come up for serious discussion before the end of the year. By 1912, therefore, when the Chinese line will be completed trains should be running between Kowloon and Canton; but regarding the date when they will be able to continue their journey to Hankow no man knows anything, least of all the Chinese shareholders of the Canton-Hankow Railway."

IS THE LIGHTHOUSE TO BE SUPERSEDED?

In these modern days, a revolution in any branch of commercial or professional activity carries with it no special alarm, instead it is generally welcomed, for it means reduced cost of production and better results. And when it is announced that the system of lighthouses, that serves to warn the sailor of danger and guide him on dangerous coasts, is to be superseded, the seafaring public will not be surprised, but it will hesitate to believe that such a revolution is at all possible until absolute proofs are available. True it is remarkable that the lighthouse of to-day, while the lighting is more effective, is built along the same lines as lighthouses constructed a century ago. The idea of a beacon exposed at a point to warn mariners of reefs and dangerous channels has been followed closely in the history of lighthouse construction to this day. Now comes Mr. Léon Dion of Wilkes-Barre, Pennsylvania, U. S. A., with an invention that promises to place lighthouses on the junk pile. In a recent issue of the *Illuminating Engineer*, of New York, one of the most advanced magazines of the electric age, devoted entirely to modern methods of lighting from the technical and practical view-point, reference is made in an interesting article to this invention. *The Illuminating Engineer* says:

"The lighthouse, which has so long held a cherished place in the lore of the sea, as well as a position of vital importance in navigation, is in imminent danger of being left as a mere monument of a by-gone age, like the stranded hull of some old wooden warship. By the use of a system recently patented by an American inventor, the navigation of harbors and waterways will become as simple and pleasing a task as walking up the 'Great White Way.'

"The inventor of this ingenious scheme is Mr. Léon Dion, of Wilkes-Barre, Pa., who has fully protected his invention by patents in all the countries of the world. The patent, by the way, is of peculiar interest in that it is one of the few absolutely fundamental patents; and, as in the case of all revolutionary inventions, the method is so simple and so apparently obvious, that it is almost inconceivable that it has not been thought of before. It consists briefly of a cable, having connected at suitable intervals short branches to which are attached incandescent electric lamps fitted with reflectors which will concentrate the light into parallel beams as nearly as possible, the whole system of course being designed to withstand the pressure and corrosive action of sea water. The lamp and reflector are made sufficiently buoyant so that they will maintain an upright position. The cable thus equipped is then laid in the proper position in the waterway to be lighted up, and connected with a source of electric supply from shore. The course of the channel will thus be marked out by brilliantly lighted spots on the surface of the water. It is a well-known fact that even the highest waves do not produce any disturbance a very short distance below their own depth. The cable with its connected lamps will therefore always be in practically still water.

"The only condition under which this system would seem to be unavailable would be in river channels or other places where the water might be roilly. In all ocean harbors or roadsteads there is apparently nothing in the way of its successful employment, and this is the view taken by numerous naval and navigation authorities of the highest rank. One of the most important features of this system is the fact that it offers equally as good guidance in the densest fog as in perfectly clear weather. Fog and wind practically never occur together, and the beam of light would therefore project from the level surface of the water up through the fog, so that the vessel would be guided by pillars of fire, like the Israelites of old. By the use of what is known as a water telescope, which is simply a tube having an observation glass that can be dropped beneath the surface of the water or by the provision of a bull's-eye inserted in the hull of the vessel below the water line, it would be possible to guide the ship without reference to the surface light on the water.

"The rapidity with which such a system can be laid in any harbor, and the fact that it is absolutely controllable with a simple electric switch at any point on shore, renders it a most valuable aid in time of war. For example, if the entrance to New York harbor were outlined by this system, it would be a simple matter to light any particular vessel on its way in or out, and extinguish the entire system when the vessel was safely beyond the need of such lighting. A well-known United States Army officer, who was detailed to study the Russo-Japanese war, and who has been shown the working plans of this invention, says that if Russia had been in possession of this system the Japs could never have taken Port Arthur, as the harbor could have been so thoroughly mined that it would have been utterly impossible for a Japanese vessel to approach without being blown up.

"As compared with the cost of lighthouses, the system is so inexpensive as to be positively laughable in comparison.

"In contemplating this improvement, which is fraught with such wonderful practical possibilities, the imagination may easily be led to less dignified if not less interesting flights. Here is a new field for the advertising man. Having covered rocks, trees, billboards, blank walls, and house-tops with signs and electric displays, and even having projected his advertisements on to the clouds, the expanse of ocean is now open to the exercise of his genius.

"We may easily conceive ourselves promenading the new White Way laid out through Long Island Sound and admiring the legends apprising us of the merits of various beers, whiskies and table waters, shown forth in sparkling letters of light upon the face of the deep. Then indeed will the advertiser have possessed the earth; and why shouldn't he?"

THE MANILA CARNIVAL

During the six days that the Philippine capital was given over to the executive committee of the Carnival and the public entertained as never before in the archipelago, over 128,000 persons paid for admission to the grounds and the revenues from all sources will reach approximately 50,000 pesos. The result is most satisfactory and judged as an initial effort exceeded all expectations. It is now practically assured that the Manila Carnival will continue an annual institution indefinitely, from the expressions indicative of generous support promised from all quarters.

The splendid display in floats made by the members of the business community evidenced the spirit of co-operation abroad in Manila and the interest taken in placing exhibits at great cost in the carnival grounds, thus rounding out a delightful effect, demonstrates the generous spirit that prevailed.

Perhaps the most desirable features were the exhibits of native products from several provinces. These sections proved of exceptional interest and the pains taken by the natives in making the exhibits representative, most gratifying. To the public who were not so familiar with the possibilities of the different provinces as industrial centers, the exhibits came as a pleasant surprise. The best indication of the spirit that these exhibits have inspired, is the declared intention of every province in the islands being represented next time to vie for supremacy in industrial production.

Next in importance was the exhibit of the schools of city of Manila. The product of the trade schools included almost every variety of furniture, tools, hats, novelties, etc. The embroideries and other fancy work by the pupils of the different grades proved exceptional.

The native population took the greatest degree of interest and there is promise that next year the Carnival will be the subject of concern to the natives of the most remote sections of the islands. And, in addition, it is expected that with an early start greater effort will be made to interest every section of the Far East.

The illumination of the carnival grounds was a distinct feature of the week and was due to the splendid equipment of the Manila Electric R. R. & Light Co., and the interest taken by the officials of the company. During the six days the company carried over 300,000 passengers over and above the regular traffic.

ASIATIC RAILWAY DEVELOPMENT

Consul W. T. Gracey, of Tsingtau, sends the following information on the opening up of China and Siberia through railway building:

The economic results of railway transportation are becoming manifest to the Chinese of Weihsien on the Shantung Railway. They find that foreign goods are plentiful and far cheaper than they were before the railway was opened.

One thousand picks and shovels are said to have been landed at Ichang, on the Yangtze River, for railway work. It is generally reported that work on the Hupeh-Szechuan line will commence at once and that Ichang will be one of the starting points.

At Tsinanfu there is much discussion of railways. The best local authorities say that contracts have been signed for the immediate building of a steam line from the Yihsien coal mines to Taierchwang on the Grand Canal. This road should be of great benefit to southern Shantung. The productiveness of these coal fields is now much limited by the lack of transportation. Two well-known German firms are joint contractors for the railroad, but the capital is said to be all Chinese. It is presumably to be a link in the Tientsin-Chinkiang line. It is also reported that the Tientsin-Chinkiang line will be in course of construction before the end of 1907, under the management of a purely Chinese company.

The projected opening of a new trade route between Siberia and Europe is reported. An engineer named Von Knorre is said to have had a favorable report on his plans from a commission of the Russian ministry of finance. He proposes to build a standard-gauge railroad 425 kilometers long (kilometer 0.62 of a mile), a river harbor at Obdorsh at the mouth of the Obi, and a sea harbor on the Bay of Warandrai. It is claimed by Von Knorre that by his combination of land, river, and ocean transportation a much cheaper freight route will be established to Europe than now exists. The cost will approximate 50,000,000 rubles ($25,000,000), to float which the Polar-Zral Railroad Company is to be formed.

A committee of Chefoo merchants, composed of Chang-cho-min, Chao-te-nan, and Wang-nin, has rendered a report, the substance of which is that since the building of the Shantung Railway from Tsingtau to Tsinanfu the port of Chefoo has been losing trade daily, owing to the better facilities of transportation to Tsingtau. It is now proposed to build a line from Chefoo to Weihsien (on the Shantung Railway) via Teng chou-fu, Wang-hsien, and Chang-i. Building and equipment would cost about $4,000,000 gold, of which Chefoo merchants will raise half, the balance to be borrowed. Foreign capital is to be excluded. The length of the line would be some 290 kilometers. The matter has been presented to Governor Yang, of Shantung Province; but Japanese papers in commenting on the matter state that there is little likelihood of the plan being carried out as it would meet German opposition, and Governor Yang would hence be cautious about rendering official aid to the undertaking.

HON. JAMES FRANCIS SMITH, GOVERNOR GENERAL OF THE PHILIPPINES

James Francis Smith was born in San Francisco in 1859. He was educated in the public schools of his native city and later

took a course in Santa Clara College from which he graduated in 1878 with the degree of A. M. Subsequently he took a course in law at the Hastings Law School and was admitted to the bar of California in 1881 when he opened an office in San Francisco. Here he built up a practice and entered actively into politics and became a prominent Democratic leader in state and local politics. When the war with Spain was declared he was appointed colonel of the First California Volunteer Infantry and served in the Philippines from June 30th, 1898, until the present time in military and other capacities. He served as deputy provost marshal general of Manila, was given command of first brigade, first division. 8th Army Corps on October 20th, 1898. He was active during the insurrection in the vicinity of Manila and commended for gallantry in action in dispatches. He also served on the commission to treat with the representatives of Aguinaldo previous to the outbreak. He was later sent to Negros as commanding general of that district and subsequently as commanding general of the department of the Visayas. After fulfilling his mission in the south he was appointed brigadier and assigned to duty as collector of customs of the Philippine Islands. Upon the expiration of his volunteer commission, he was appointed to the supreme court of the archipelago. He continued to wear the ermine until January 1st, 1903, when he was appointed member of the Philippine Commission and secretary of public instruction. Subsequently he was given the appointment of vice-governor and upon the retirement of Governor General Ide in October, 1906, he succeeded to that position.

OBITUARY

The sad death of Mr. William Danby, M I.C.E of Hongkong, February 12th at the Civil Hospital there as a result of a fracture of the skull, came as a serious shock to his many friends in the Far East. Mr. Danby's name is associated with almost every feature of development in Hongkong and his life one of achievement. He was recognized as the dean of the engineering profession in the Orient and his loss will be keenly felt. He was a public spirited citizen and found ever active in demonstrating his loyalty to the colony. Personally he had many loyal friends won by his sterling qualities, his aversion to sham, his assertive candor, his rugged honesty, his generosity and his goodness of heart.

Mr. Danby was born in 1842 in England and came to Hongkong in 1873 after filling the positions of civil engineer to the municipal engineer and later deputy borough engineer at Leeds, as well as resident engineer, and previous to coming to the colony, engineer in charge of the extension of the Leeds waterworks. He came to Hongkong as assistant to the surveyor general and was in charge of the surveys and borings of the Tytam waterworks. He designed the tunnel that connects the reservoir with the Bowen Road filter beds. He was later in charge of all new government works and surveys until 29 years ago when he left the service to engage in private practice. Since that time he has been identified with the construction of the Quarry Bay Sugar Refinery, the Kowloon Docks, numerous important buildings in Hongkong and Canton as well as other engineering works.

NEW PUBLICATIONS.

The Annual Report of the Secretary of War of the United States for 1907 is received. In his recommendations in regard to the improvements of posts in the Philippines he says:

"The first is an appropriation of about $750,000 for the construction of a regimental post at Baguio, Benguet, the same not to be expended until a railway, electric or other, has been constructed from Camp One to Baguio and making complete railroad transportation between Manila and Baguio

"The second, the enlargement of the reservation of Fort McKinley near Manila, by the purchase of 6,000 acres for $185,000.

"The third, is an appropriation by Congress for the construction of an electric or other railway from Camp Overton, on the North shore of Mindanao, to Camp Keithley, on Lake Lanao, in the center of the Moro country."

The secretary explains that the benefit of a post at Baguio at an altitude of 5,000 feet for recuperation of troops would be found in the extension of the tour of duty in the Philippines to three years and the economy in the cost of trans-Pacific transportation would more than cover the cost.

The additional land in the vicinity of Fort McKinley would be utilized for maneuvers of large bodies of troops.

The railroad from Overton to Keithley in Mindanao would cover a distance of 25 miles and cost $500,000. The outlay is recommended for the reason that Keithley is situated at an altitude of 3,000 feet and occupies the most strategic position in the Philippines. The saving in transportation of supplies would more than warrant the outlay.

The estimate submitted for the construction of batteries for the defense of Manila and Subig Bay for the year 1909 is $6,488,000 and for torpedo defenses for Manila harbor $150,000 was provided for 1908 and also for submarine mines which is included in the appropriations made for the insular possessions in 1907.

The actual strength of the army at the end of 1907 exclusive of 25 officers and 554 enlisted men of the Porto Rico regiment and 116 officers and 5,013 enlisted men of the Philippine Scouts was 53,940 officers and enlisted men. The authorized strength, exclusive of the Hospital Corps, at the present time is 75,643 including the insular native troops.

The Analysis of Elastic Arches, Three-hinged Two-hinged and Hingeless, of Steel, Masonry and Reinforced Concrete by Joseph W. Balet, Consulting Engineer, is the comprehensive title of an illustrative volume issued from the presses of the Engineering News Publishing Company of New York. The purpose of this book is to give the engineering profession a comprehensive exposition of a new system of treating the subject, known as the elastic theory, as applied to the stresses in arches. The author endeavors to present a method that applies to all problems and is the result of a discovery that there is a characteristic common to all arches of the same type. The author states that by this system the process of application is so clear and simple that it will be found preferable to all forms now in use. Price, $3.00 U. S. C., net.

Economics of Railway Operation, by M. L. Byers, C.E., chief engineer of Maintenance of Way, Missouri, Pacific Railway, and published by the Engineering News Publishing Co., New York, has been received. This volume brims over with practical information on railroading and, as the author announces, his object is to "bring into view the general outline of the mechanism of railway operation as it is carried on to-day and to develop the principles which have governed in producing the form this mechanism has assumed and those that underlie its economic use."

The volume is one of great practical value to those directing any department of railroad work and will be welcomed by all interested in the development of the railroad business in the Far East. Price, $5.00 U. S. C.

Album Histórico de la Primera Asamblea Filipina, compiled by Mr. Anthony R. Tuohy, containing the biographical sketches of the members of the assembly with their photographs as reproduced from ***La Revista Filipina***, the Spanish supplement of the FAR EASTERN REVIEW, is a neat volume bound in morocco and cloth which will serve as a valuable historical book of reference. It is dedicated to the representatives of the Assembly and future generations of generations of the Filipino people who shall surely honor the members of the country's first parliament. Besides the biographies and the illustrations a list of the members and their residences as well as the division of the assembly into committees is appended. The frontispiece is the reproduction of a group photograph of the members together with the members of the commission and the secretary of war, taken at the opening of the inaugural session. Then follows the photographs of Secretary Taft, Governor General Smith, Speaker Osmeña and Delegates Legarda and Ocampo. In all there are 80 members, and in addition the biographical sketches and photographs of the secretary of the legislature and the secretary to the speaker appear.

SYNTHETIC RUBBER PERIL

The alarm felt in rubber circles from the grower to the manufacturer that the real article may be superseded in the market by some manufactured artificial substitute is a subject for comment by the *India Rubber World* from which some comfort may be extracted. That magazine says:

"Just why so many people think that they can achieve synthetic rubber, and why so many more—rubber planters, importers, and manufacturers—are fearful that it will come, and in some way upset their business, it is hard to imagine. Reviewing the year's progress in this line, the producers of rubber by artificial means have done everything—but produce. Indeed, they seem to lack knowledge as to what synthesis is. Synthesis is, specifically, the building up of complex compound, by special reactions, whereby their component radicals are so grouped that the resulting substances are identical in every respect with the natural articles. The producers of so-called synthetic rubber group themselves into three classes. The first makes something of the oil substitute type that may be used in connection with india-rubber; but that has no particular value used alone. They hypnotise themselves into believing that it is practically rubber. This is not synthesis; it is silliness.

"The second class begins with crude rubber—fine Para preferably—doctoring it with something like oil of winter-green to thoroughly disguise it, and by dark and mysterious ways and sleight-of-hand performances produce, for the edification of capital, what they called "synthetic rubber." This is not synthesis; it is sin. The third class embraces honest, usually aged, scientists, who buy most of the ingredients for secret formulas, upset all rules governing chemical reactions (not knowing at just what point the inventor slips the ace out of his sleeve), and produce "synthetic rubber." This is not synthesis; it is senility.

"Not that it is claimed that synthetic rubber will never be attained. It may be. But its first cost for years will probably make it only the plaything of the laboratory. Indeed, so far distant does the production of synthetic rubber seem, when one reviews the attempts towards its production, that it is safe to say that when it does appear the cradles of the land will also be filled synthetically. Not to hit in any w y the honest seekers for this ideal product, but for the guidance of geniuses the following formula is submitted:—10 lb. Para rubber, 1 gallon benzol, 1 oz. of winter-green, mix thoroughly and evaporate the solvent, then thoroughly mix 15 parts above mixture, 10 parts ignorance, 25 parts avarice, 50 parts duplicity. Compound in secret.

LONDON RUBBER EXPOSITION

The promoters of this enterprise are meeting with general support and there is reason to believe that a representative exhibit will be sent from all the rubber growing districts and manufacturers will not neglect the opportunity to advertise their wares. The date chosen is in September and it will be held at Olympia. The Federated Malay States have made an application for one thousand feet of space for the proposed representation from that section. So many applications have already been received that the board of managers were obliged to change the original plans to hold it in the Royal Horticultural Hall at Westminster.

THE KIANGNAN DOCK & ENGINEERING WORKS

The extensive establishment owned by the Kiangnan Dock & Engineering Works near Shanghai has had a busy year and the company is keeping abreast of the times in modern equipment. This institution was originally a part of the Imperial Chinese Government Arsenal and is situated at Kiangnan on the left bank of the Whangpoo River and about 3.5 miles from Shanghai. In 1905 the dockyard section was taken over by the commercial company now in control and the plant enlarged and put on a modern basis to meet the increasing business. According to a report issued in November, 1906, the tonnage docked there up to that time amounted to over 153,000 tons and last year, while the figures are not available, it is expected that the vessels docked will double the former tonnage.

Among the vessels constructed during the year, the type of which may be recognized from the accompanying illustrations, are:

A twin screw tug-boat known as the Tsin-Tung was launched from this dock and was especially built for the China Merchants S. N. Co. for service in the Peiho River. This vessel has a speed of 11½ knots and is capable of maintaining a speed of 7 knots towing an 800 ton lighter, fully loaded. In addition this vessel has a spacious saloon forward for conveying passengers to and from Taku and the steamers outside the bar. It is equipped with two sets of compound surface condensing engines, each of which developed 200 H. P. with 145 pounds steam pressure and recorded 170 revolutions a minute.

Two single screw police cruisers known as the An Hai and the Sui Lui built for the Manchurian government by the Kiangnan Dock & Engineering Co. are equipped with compound surface condensing engines. These engines developed 320 H. P. under 130 pounds steam pressure and recorded 180 revolutions a minute. These vessels maintained a speed of 11.5 knots at the measured mile.

A composite launch, steam, 55 feet long, was built by the company for its service in the harbor. It has a speed of 9.5 knots an hour.

One of the finest vessels turned out is the Li Tung, a teakwood steam launch the length of which is 67 feet over all, and built for the Whangpoo Conservancy Board for harbor service at Shanghai and Woosung. Her speed is 10.5 knots an hour. She is strongly built to withstand the rough weather at Woosung and is fitted up in first class style. This vessel is equipped with a compound engine. The above are a few of the many contracts completed during the year and give some idea of the class of work that features the operations of the company's plant.

Some idea of the dry dock may be gathered from a description recently written but which does not include the projected extensions or late additions. When the dock was taken over from the Chinese government, it was totally inadequate to meet the requirements of the company and the dry dock was lengthened about 40 feet and deepened over 3 feet with new reel blocks and the bottom newly tiled and decked. New pumping machinery was installed, including one 20 inch and a 10 inch centrifugal compound engine installed in a steel tank sunk about 12 feet in the ground and having a concrete foundation. Two large Lancashire boilers and a marine type of engine were installed at the same time, all having a working pressure of 100 pounds to the square inch. In the pumphouse, the machinery dock tool warehouse as well as a splendidly arranged lavatory and bathrooms for the use of the crews of the ships in dock are located. There are wharves on either side of the dock for the convenience of vessels arriving or leaving the yards. On the Upper Wharf a pair of shears have been installed with boiler and winch capable of raising 60 tons.

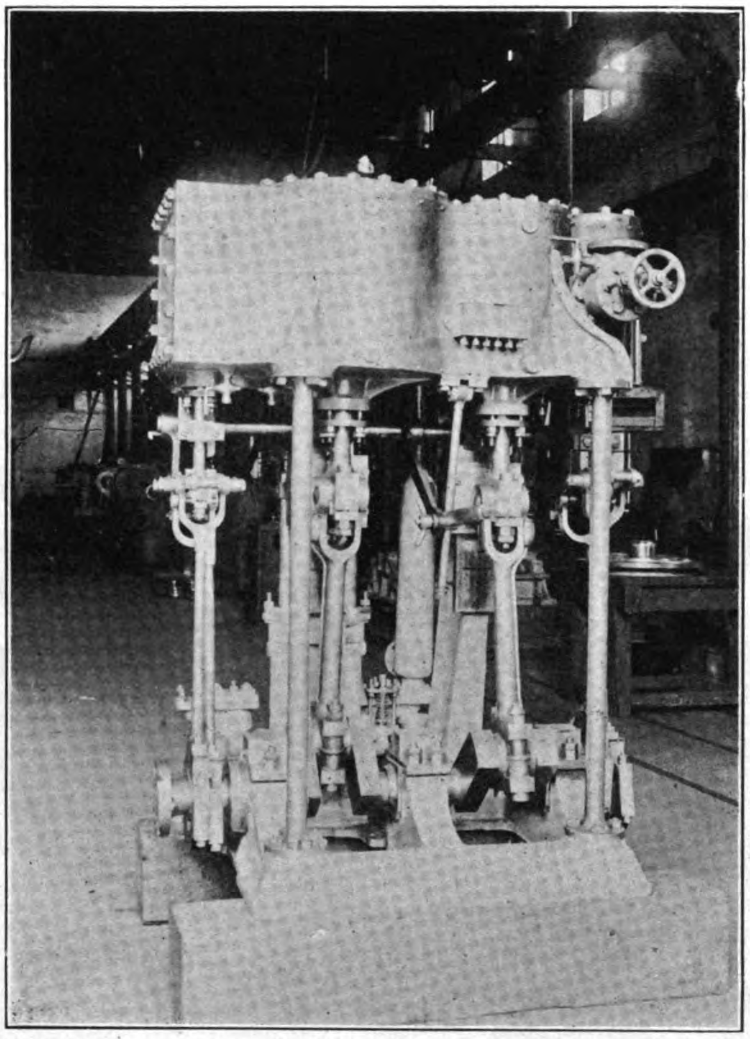
The boiler shop is situated near the repair shops and is equipped with all the necessary modern machinery to keep pace with the work of construction and repair at the docks. A large Tangye engine is installed to run this machinery with two large Lancashire boilers.

A number of large godowns for storage of lumber and other material together with a mould loft and carpenter shop are situated at the head of the dry dock. The administration building is located close to the large residence of the foreign employees and the two lower floors are fitted out for offices to accommodate the officials of the company. The first floor is occupied by the directors, managers and accountants while the upper floor is occupied by the designing and drawing staff. The residence recently erected is divided into two wings, one of which is occupied by the foreign staff and the other by the Chinese students. The basement of this building is set aside for the comfort of the occupants and is divided into a reading room, billiard room and offices.

The machine shops occupy a large building almost opposite the administration building. A traveling crane with a 40 ton capacity and running the entire length of the building, serves the different departments with material, etc. The arrangement of the lathes provides

WEST WHARF OF THE KIANGNAN DOCK AND ENGINEERING WORKS, SHANGHAI

for most satisfactory and expeditious handling of the material to and from these machines as well as the planing and boring machinery.



THE COMPOUND ENGINE OF THE STEAM LAUNCH LITUNG

Among the machinery installed is a large triple-geared face lathe manufactured by Messrs. Craven Bros. of Manchester, the chuck of which is sufficiently large to take in a piece of work 10 feet 6 inches in diameter and 3 feet in length; a heavy triple-geared sliding-surfacer screw cutting machine by the same company with 25 inch centers and with a capacity of handling a piece of work 32 inches in length. It has two double side rests carrying four tools that may operate simultaneously. A vertical planing machine with a horizontal traverse, a horizontal planing machine, and a horizontal drilling and boring machine are also found on the one side of the shop and these are duplicated on the other side of the building. Besides this splendid equipment numerous lathes, planing, slotting, screwing and drilling machines fill all the available space in the left wing. In addition to this there is an auxiliary machine shop the capacity of which is increased from time to time to meet the steadily increasing patronage.

The foundry, which was formerly the shot and shell department of the arsenal, has been equipped with three two-ton cupolas and a large cupola installed by the company recently. This last is of modern construction with a patent drop bottom and has a melting capacity of eight tons an hour. The foundry, like the machine shop, is served by a large 15-ton jib crane, and several smaller cranes. Directly under the large crane is a large circular casting pit capable of turning out propellars 18 inches in diameter. Adjoining the foundry is a pattern shop equipped with a large steam hammer and served by a four-ton crane. Propeller shafts up to 14 inches diameter may be welded here. A smaller hammer is utilized for less important work in the smithy. The coppersmith shop is also an adjunct of this shop.

The various shops are connected by a network of rails for expeditious handling of materials and product in the course of construction. The sanitary conditions are excellent and the water supply most effective.

THE RANGOON WATERWORKS

An interesting résumé of the improvements to the Rangoon water supply system for 1906-7 appears in the Rangoon *Times* and follows:

The water supply of the town was taken from the Hlawga Lake and the tube wells at Ablone throughout the last official year.

The water supply for the Dhoby wash-houses was obtained from Victoria Lake. During the year 1,478,343,040 gallons of water were pumped to the high level reservoir at a cost of Rs. 60,464 or 7.86 pies per 1,000 gallons.

The Hlawga Water Works were taken over from Government on the 1st July, 1906. Up to the 31st March, 1907, the total expenditure incurred on these works amounted to Rs. 47,24,283. A supplementary estimate for Rs. 1,42,662, was sanctioned for special repairs, towards which Rs. 58,719, were contributed by Government from provincial funds.

Part of this work had been carried out by the Government Public Works Department which cost Rs. 77,043. The remainder of the work has been taken in hand by the Special Engineer in the following order:—

(a) Strengthening the remaining 900 running feet of the back slope of Dam No. 3, which was commenced at the end of August and finished by the middle of October, 1906.

(b) Strengthening the back slope of Dam No. 1, which was commenced in the middle of October and finished by the end of November, 1906.

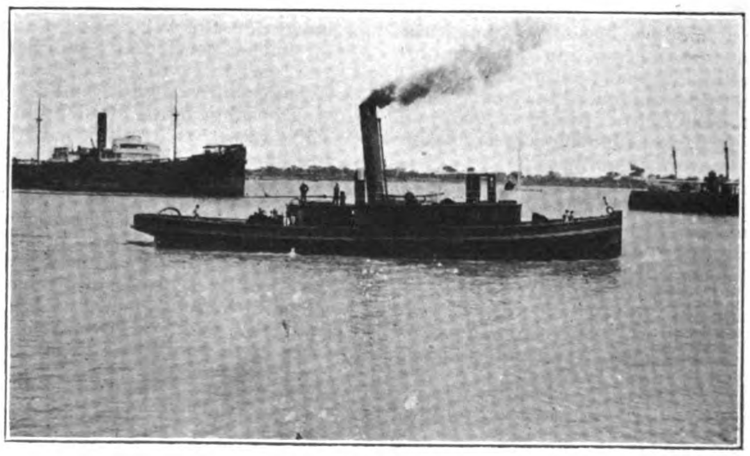
(c) Raising of puddle in Dam No. 6, which was commenced in the middle of November and finished by the end of December, 1906.

(d) Raising of puddle in Dam No. 5, commenced at the beginning of January and finished by the end of February, 1907.

(e) Raising of puddle in Dam No. 1, commenced at the beginning of January, 1907, and work on this is still in progress.

During the year a leak was discovered in Dam No. 1, and it was decided to repair this leak by constructing a ring bund from chainage 3,450, to chainage 3,800, and then excavating a trench down in front of the puddle to R. L. 39; it being surmised that the leak would be about R. L. 42. The leak had been followed 40 feet into the dam from the rear of the dam to R. L. 39, at which level it was found to be rising and in a line diagonal to the centre line of the puddle.

Work was started on this at the end of February, 1907, the contract for which was rescinded on the 23rd March, owing to slow progress; daily labor was employed for the next three weeks, and it was then found



TWIN SCREW TUG BOAT TSIN-TUNG.—DIMENSIONS 115×21×10 BUILT FOR THE CHINA MERCHANTS S. N. CO. OF TIENTSIN FOR SERVICE IN THE PEIHO RIVER—SPEED 11½ KNOTS AND CAPABLE OF MAINTAINING A SPEED OF 7 KNOTS TOWING AN 800 TON LIGHTER FULLY LOADED. THE VESSEL HAS A SPACIOUS SALOON FORWARD FOR CONVEYING PASSENGERS TO AND FROM TAKU TO AND FROM STEAMERS OUTSIDE THE BAR

that the earth was taking up a very flat slope, though a stone toe had been constructed to hold it up. To expedite the work, the earth from the top of the Dam, for a length of 500 feet, down to R. L. 56, was used for the ring bund, before which the earth had to be brought from a paddy field 2,000 feet away, and then lifted 25 feet.

On the 14th April, 1907, it was decided to stop work on the ring bund, and in consultation with the Special Engineer, it was decided to excavate a trench behind the puddle, closely timbering it down to R. L. 39, by which means the hole through which water was leaking would be seen and could be plugged.

Owing to the difficulty of getting sufficient jungle timber of the required scantling it was not possible to start timbering this trench till the 23rd April, 1907; eighty feet of trench being first excavated. Work was then carried on night and day, when R. L. 43 was reached, it was then found that the puddle ended. On excavating further the leak was found at R. L. 42 and coming through gravelly soil below the puddle. On the original section a small hill is shown at this point, the cause of the leak thus being that the puddle trench had not been taken down far enough.

On excavating another 2 feet it was found that, though the greater part of the leak was through one hole, there were smaller leaks along the full length of the trench. It was then decided, on the 2nd of May, to try and grout the soil, which consisted of sand and laterite gravel, by carrying holes down in front of the puddle and filling with cement grout, which, however, did not set and had no effect on the leaks.

On the 4th of May, 1907, the rains broke, which made work very difficult, also cracks appeared on both sides of the trench which was 20 feet deep, R. L. 57—R. L. 37, so it was decided to up fill the trench with puddle, drawing timbers on the upstream side so as to make a good junction between the old and new puddle, the leaks being tapped by leaks rubber pipes plugged when the junction had been made. This was completed by the 20th May 1907; work being slow on account of the heavy rain. In the meanwhile the front slope of the bund, which had been cut down to R. L. 56, was rebuilt to R. L. 61. The back slopes at the two cuts, through which earth was conveyed through the dam for the ring bund, was also raised from R. L. 52 to R. L. 57.

Owing to the difficulty of obtaining sufficient daily labour, the aid of Government was asked to get forced labour, and the provisions of the Embankment Act were brought into force. The forced labour was, however, not utilized, a sufficient number of coolies having been obtained in the meanwhile.

When the leak was first seen on the rear toe of the dam it was tapped by means of a pipe and the discharge observed. It remained steady at 8 gallons per minute. During repairs, when the leak was pumped out from the trench, the discharge through the pipe at the foot of dam decreased to ½ a gallon per minute. It is now 4⅔ gallons per minute.

It is proposed to leave this portion of the dam from chainage 3,300 to 3,800 at R. L. 62, raising the puddle to R. L. 59, bringing it to full height next year. Along this portion blue puddle was not found above R. L. 52.

The maintenance establishment was employed on petty repairs of dams and pipe line, *i.e*, clearing jungle, cleaning and repairing, pitching, filling up rat holes, etc.

Water works survey.—The Special Committee appointed by Government to report on certain points connected with the Hlawga Water Works among other matters recommended that surveys should at once be undertaken in order to obtain information for the purpose of designing the best method of bringing into the town the full supply of water that the present reservoir will give.

The Municipal Committee, in August 1906, adopted this proposal and sanctioned Rs. 30,000, for the surveys, against which estimate an expenditure of Rs. 13 428 was incurred up to the 31st March, 1907.

In connection with the water works improvement scheme, for which a loan of Rs. 5,85,000 was raised, *viz:*—Rs. 3,00,000, in 1905, and Rs. 2,85 000, in 1906, the following mains were laid during the year:—

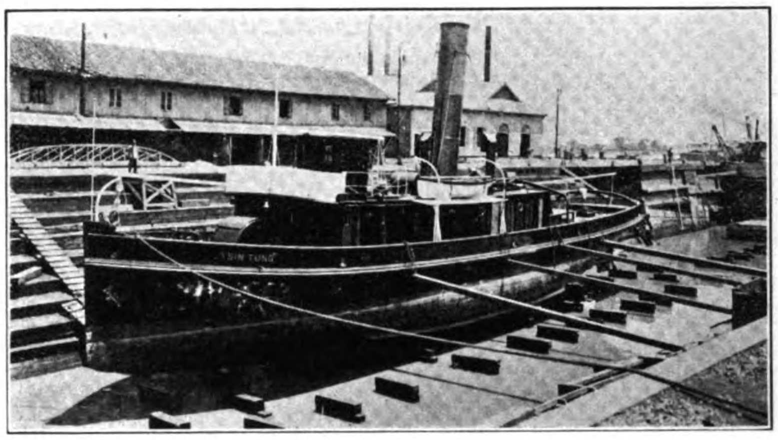
(1) 6-in. water mains in the area south-east of the Jubilee Hall.

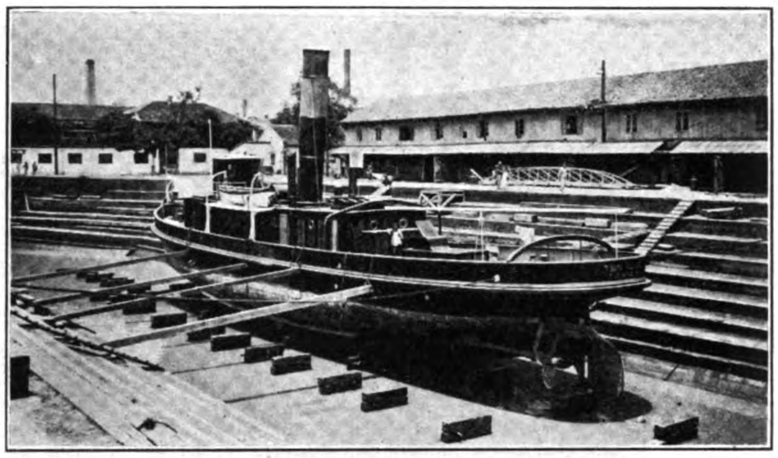
(2) 27-in. high-pressure water main along China Street and Pagoda Road.

(3) 42-in. water main along Stockade Road.

(4) 36-in. and 27-in. water mains along Montgomery Street, westward from Stockade road, as far as Keighly Street.

The expenditure during the year on this account was Rs. 4,09,263.

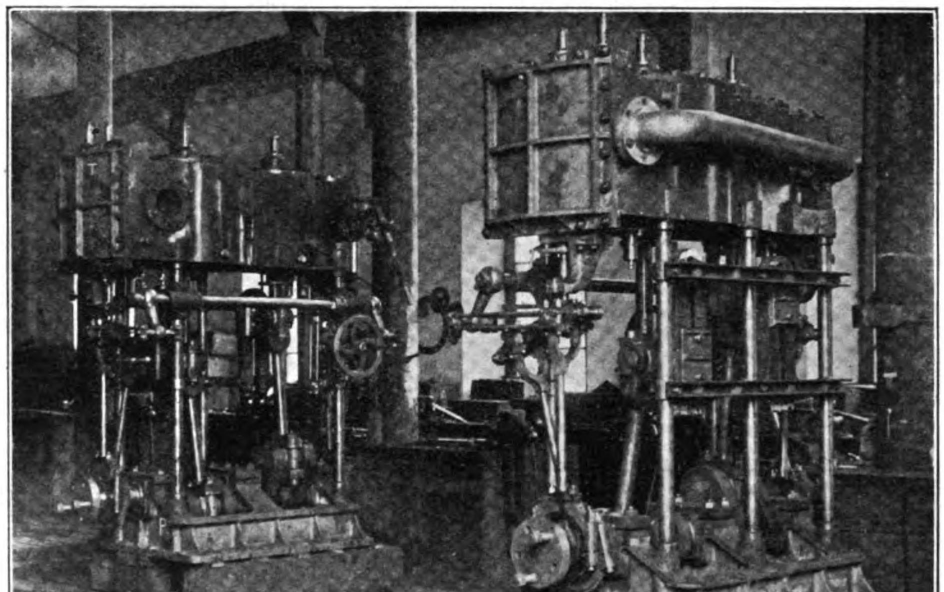




TWO VIEWS OF THE TSIN TUNG IN THE KIANGNAN DOCKS

DURABILITY TESTS OF AMERICAN TIMBERS

In the spring of 1905, the Bureau of Forestry received from the United States Bureau of Forestry, one hundred and eight samples of timbers which were obtained from sawmills and lumber yards in California, Washington, Oregon, Idaho, and Montana. They were furnished for the purpose of making durability tests of representative western American timbers which are or may be imported into the Philippine Islands. The samples were in the form of small boards, 1 inch thick, 3 to 5 inches wide, and 11 inches long.



TWO SETS OF COMPOUND SURFACE CONDENSERS FOR TWIN SCREW TUGBOAT TSIN TUNG. EACH OF THESE ENGINES DEVELOPED 200 H. P. WITH 145 POUNDS OF STEAM PRESSURE AND 170 REVOLUTIONS A MINUTE

The following timbers are represented in the test:

Common Name	*Locality.*
Red Fir	Washington, Montana, California, & Oregon.
Western Hemlock	Washington & Oregon.
Spruce	Washington.
White Spruce	Montana.
Lodge Pole Pine	Montana.
Big Tree	California.
Redwood	California.
Sugar Pine	California.
California White Pine.	California.
Western White Pine	California.
Cedar	Washington.
Western Mountain Pine	Idaho. (Series C only.)
Western Cedar	Idaho. (Series C only.)

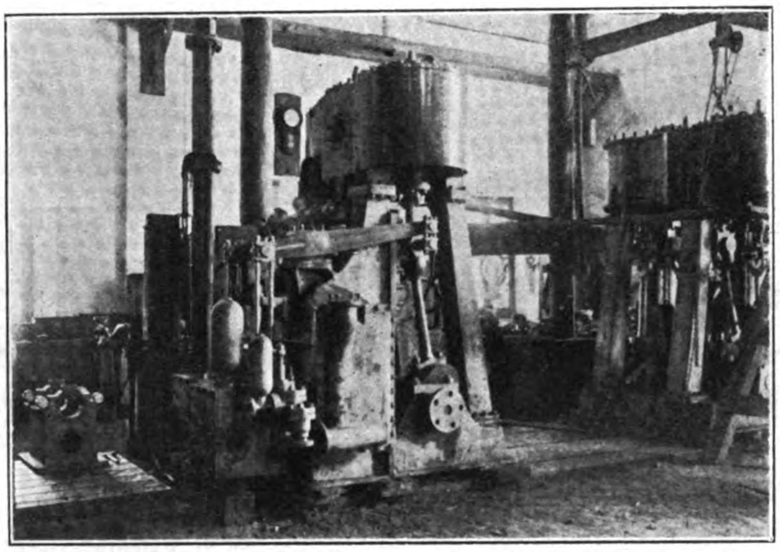
The test pieces were divided into three series, marked A, B, and C, and each piece was marked with a number and the letter of the series.

Series A. 32 numbers (1 to 32). Untreated.

Series B. 32 numbers (1 to 32). Treated with mercuric chloride.

Series C. 44 numbers (1 to 45; No. 5 missing). Treated with creosote.

These timbers were placed in the ground on the Lamao Forest Reserve, in a clearing in a small mountain valley, at an elevation of about 250 feet. (2nd Station). They were placed upright in rows (with approximately one-third of the length of the board above the ground) in a porous clay loam in full sunlight. They remained here about six months and were then removed to a sea level station (1st Station), about three miles east of their first location. Here they were planted in a porous clay loam, at the base of a steep, brush covered slope, and under the shade of small trees. Less than two inches of the wood was exposed. They were covered with a litter of brush and leaves so that the white ants (Anay) might be early attracted to the spot. On account of the slope of the hill, the pieces were placed in a slanting position. The spot chosen was but a few yards from the beach, and exposed to drying winds. The test pieces were examined from time to time, and by April, 1906, all of the untreated pieces (Series A) had been attacked and, on Jan. 27, 1908, they had become useless for further test. The following is a record of the examinations.



TWO SETS OF COMPOUND SURFACE CONDENSING ENGINES FOR TWO SINGLE SCREW POLICE CRUISERS AN HAI & SUILIU FOR THE MANCHURIAN GOVERNMENT. EACH OF THESE ENGINES DEVELOPED 320 H. P. WITH 130 POUNDS PRESSURE AND 180 REVOLUTIONS A MINUTE, THE VESSELS MAINTAINING THE MEAN SPEED OF 11.5 KNOTS AN HOUR AT THE MEASURED MILE

Series A, B, and C. Planted July 5, 1905.

Examined Sept 21, 1905, 16 pieces of Series A attacked.

Examined April 20, 1906, 32 pieces of Series A attacked; 15 pieces so seriously damaged that they were removed.

Examined July 7, 1907, 15 pieces Series A, showing severe attack, were removed.

Examined Jan. 27, 1908. The 2 remaining pieces, severely attacked, were removed.

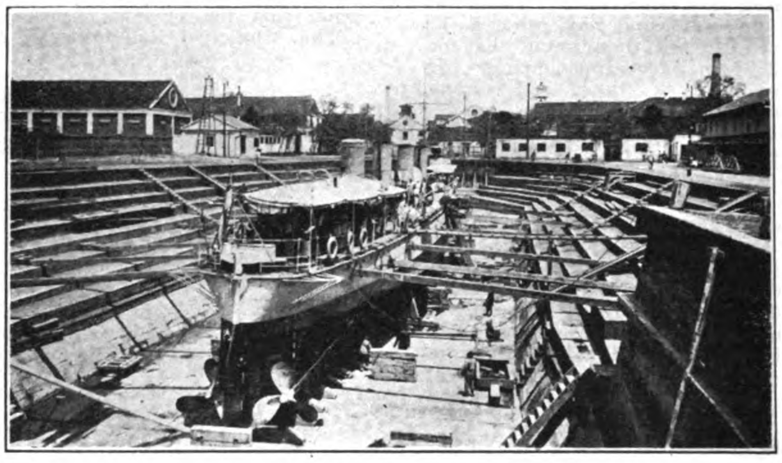
Test of untreated timbers ended.

Examined Jan. 27, 1908. All pieces of treated timbers, (Series B and C), were sound, and untouched by white ants and fungi, and have been replanted for further test.

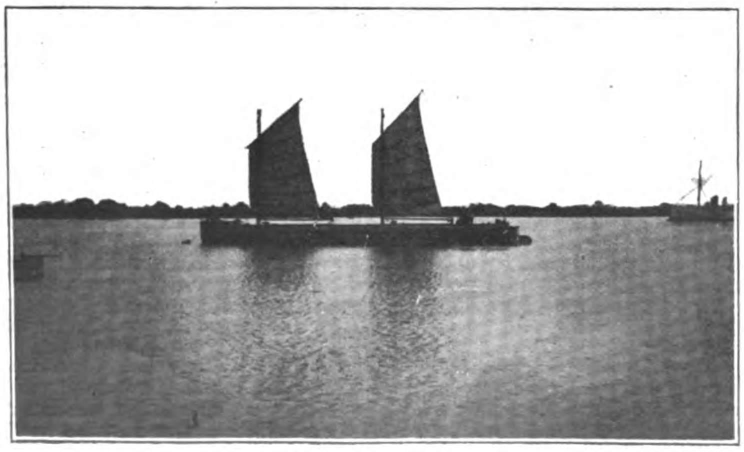
The following tables show in detail the results of the tests of untreated woods. (Series A.)

APRIL 21, 1906.

Species.	Slight Attack.	Vigorous Attack.	Destroyed.	Total No. of pieces.
Red Fir		9	2	11
Western Hemlock		4		4
Spruce		2		2
White Spruce		1		1
Lodge Pole Pine		2		2
Big Tree		1	1	2
Redwood		2		2
Sugar Pine	2			2
California White Pine	2			2
Western White Pine	2			2
Cedar	2			2
Summary	8	21	3	32



H. B. M. DESTROYER VIRAGO IN KIANGNAN DOCK



ONE OF THE TWO 800-TON LIGHTERS BUILT FOR THE CHINA MERCHANTS S. N. CO. OF TIENTSIN FOR SERVICE AT THE TAKU BAR

JULY 7, 1907.

Species.	Slight Attack.	Vigorous Attack.	Destroyed.	Total No. of Pieces.
Red Fir		9	2	11
Western Hemlock		3	1	4
Spruce			2	2
White Spruce		1		1
Lodge Pole Pine		2		2
Big Tree		1	1	2
Redwood		2		2
Sugar Pine	1	1		2
California White Pine		2		2
Western White Pine		1	1	2
Cedar	2			2
Summary	3	22	7	32

NOTE:—July 7, 1907, Nos. 3, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 23, 27, 29, 31, (Series A), were brought to Manila and photographed

This test shows that the common conifers of the western part of the United States, unless treated, are readily attacked by white ants (when conditions are favorable to these termites), and that under these conditions, in a period of less than two years, timbers will be so severely attacked as to necessitate their removal. Treated timbers, under the same conditions, are unharmed.

CHINKIANG TUNNEL OPEN

The rapid progress made in the construction of the Shanghai-Nanking Railway will result in the opening of the entire line about the middle of April. According to the *North China Daily News* the Chinkiang tunnel was opened for the passage of traffic on February 29th.

This tunnel, which is just over a quarter of a mile long, was begun on September 1, 1905, when the foundation stone was laid by H. E. Quok Taochi, Taotai of Chinkiang. It has, therefore, taken two years and five months to build. It is built partly through the Loass formation, but through sandstone for the greater portion. The faces of the tunnel are built of concrete, while the interior is all lined with brickwork laid in cement.

It is satisfactory to note that, during the whole progress of the work, there had not been a single workman killed inside the tunnel. This immunity from fatal accident speaks well of the care taken of the Chinese workmen, who were entirely new to this class of work and to what was required of them.

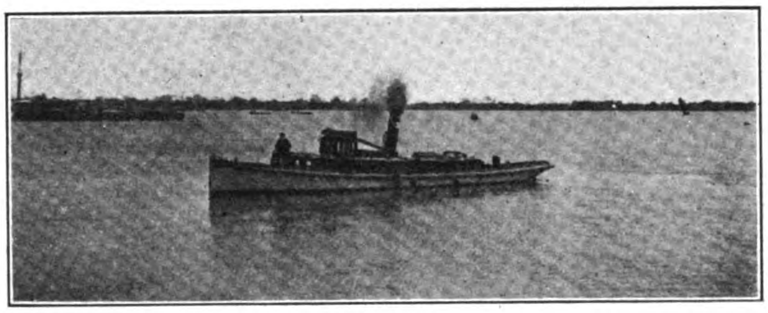
Beyond Chinkiang to Nanking, a distance of forty-four miles, the earthworks and bridges are already finished. Rails are laid to within four miles of Nanking and it is hoped that the line will be open to traffic early in April. The journey from Shanghai to Nanking should then occupy only seven hours and a half.

PROTECTION FOR JAPANESE SUGAR

The effort to protect the sugar refining interests in Japan by providing a heavy duty on the imported refined product and at the same time admitting free of duty the raw product, is meeting with opposition from the Formosan sugar planters who have large interests at stake and who claim that the sugar growing industry would be discriminated against. Commenting on the situations as affected by the legislation the *Japan Chronicle* says:

The very heavy increase in the excise on refined sugar, amounting in some cases to a fivefold increase, is evidently with the object of protecting the Japanese refineries as well as obtaining additional revenue. The crude article is to be admitted at a low duty, refined in Japan, and an endeavour made to capture the markets of China and the Far East generally as well as monopolise the home market. It appears, however, that this proposal is not at all to the liking of the planters in Formosa, who object to the importation of the raw material for the refineries at a low duty. They also desire to be protected, and if the Government protects the sugar refineries by lowering the duty on crude sugar the planters of Formosa want to know where their protection against foreign products comes in. This is the difficulty which every Government that adopts Protection as its tariff policy has eventually to face. How is the protection afforded trades and industries to be so distributed that they each and all got their fair share? The problem only needs to be stated to be dismissed as insoluble, but this does not prevent a Government from being appealed to on all hands for more protection, the appetite growing by what it feeds on. These methods may succeed in keeping out the productions of foreign countries,—they will certainly not encourage the export of the manufactures of Japan. The cost of production is necessarily increased, and the advantages which Japan might otherwise have had as the emporium for the Far East is already lost by the methods to which she is wedded. But, despite a languishing trade and an embarrassed exchequer, the failure of Protection is met by the remedy of more Protection.

TEAKWOOD STEAM LAUNCH LI TUNG.—LENGTH OVER ALL 67 FT.—BUILT FOR THE WHANGPOO CONSERVANCY BOARD FOR HARBOR SERVICE AT SHANGHAI AND WOOSUNG. HER SPEED IS 10.5 KNOTS AN HOUR. THE LAUNCH IS STRONGLY BUILT TO WITHSTAND THE ROUGH WEATHER AT WOOSUNG AND IS FITTED UP IN FIRST CLASS STYLE



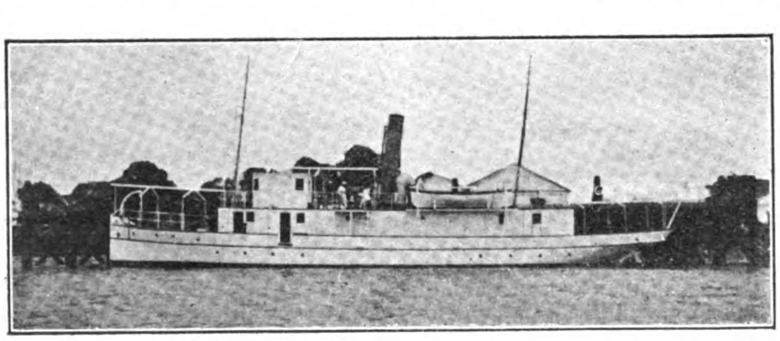
COMPOSITE STEAM LAUNCH FOR HARBOR SERVICE BELONGING TO THE KIANGNAN DOCK AND ENGINEERING WORKS.—LENGTH 55 FEET; SPEED, 9.5 KNOTS

WORLD'S TEA PRODUCTION

The total amount of tea grown in the year 1906 according to the *Tropical Agriculturalist* amounted to 682,000,000 pounds. Java and Natal produced respectively, 27,760,000 and 1,650,000 pounds, showing a marked increase over preceding years while China has lost ground.

The following is the tabulated statement issued by that publication:

	India	Ceylon	China	Japan	Total Pounds
1896	150.6	110.0	240.1	65 5	576.7
1897	152.5	114 4	212 8	63.9	555.8
1898	158.7	122.3	215.9	61.5	571.7
1899	192.5	149 2	196 4	61.0	613.3
1900	150 0	149.2	196.4	61.0	616.3
1901	182 8	144.2	162.1	61.1	566.8
1902	184.0	150.8	206.7	64 7	625.0
1903	200.9	149.2	224.4	70 0	678.5
1904	214.7	157.9	193.8	61.6	655.5
1905	217.2	107.1	182.9	54 7	652.5
1906	236.7	170.5	188.3	56.7	681.8



VIEW OF ONE OF THE CRUISERS

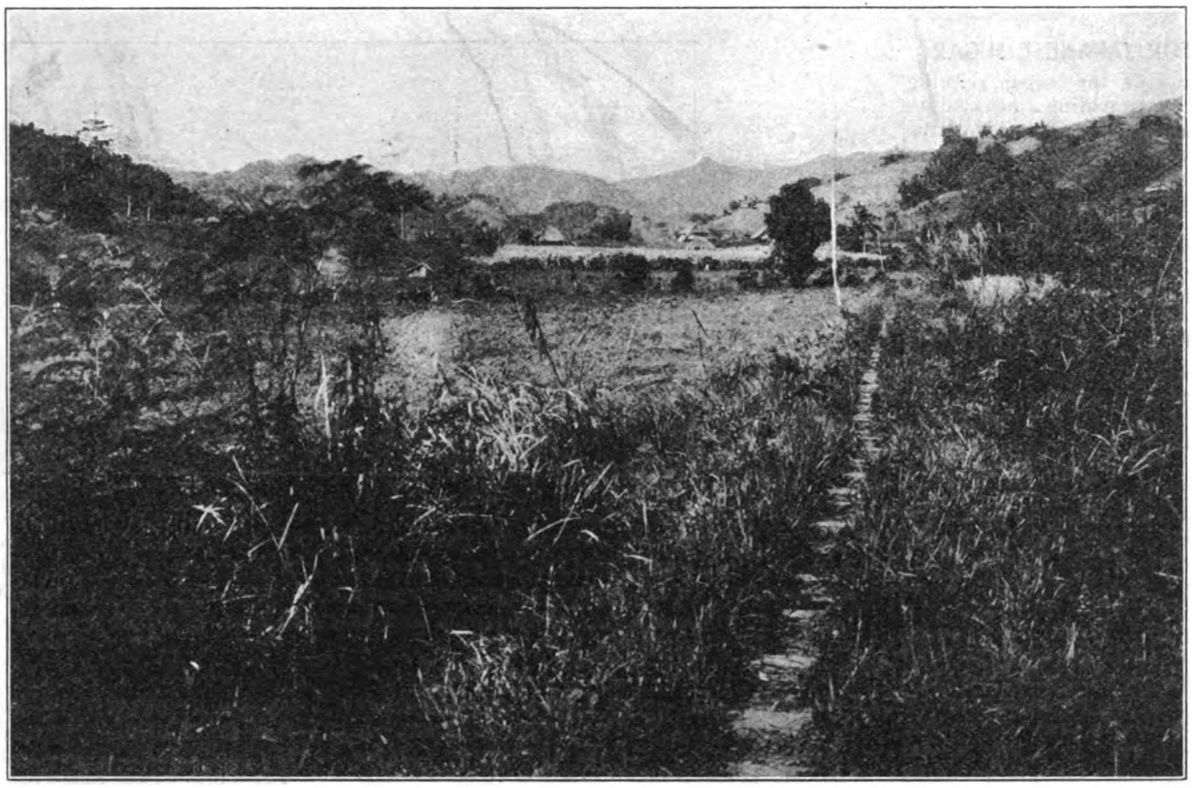
COAL FIELDS OF CEBU

The Geology of the Compostela-Danao Coal Field is the caption under which Mr. Warren D. Smith, acting chief Division of Mines, contributes an interesting and exhaustive paper which appears in the general science section of the *Journal of Science* for December. Through the courtesy of the Bureau of Science the following introduction excerpts with illustrations which deal with the economic features of these rich fields, are presented by the FAR EASTERN REVIEW:

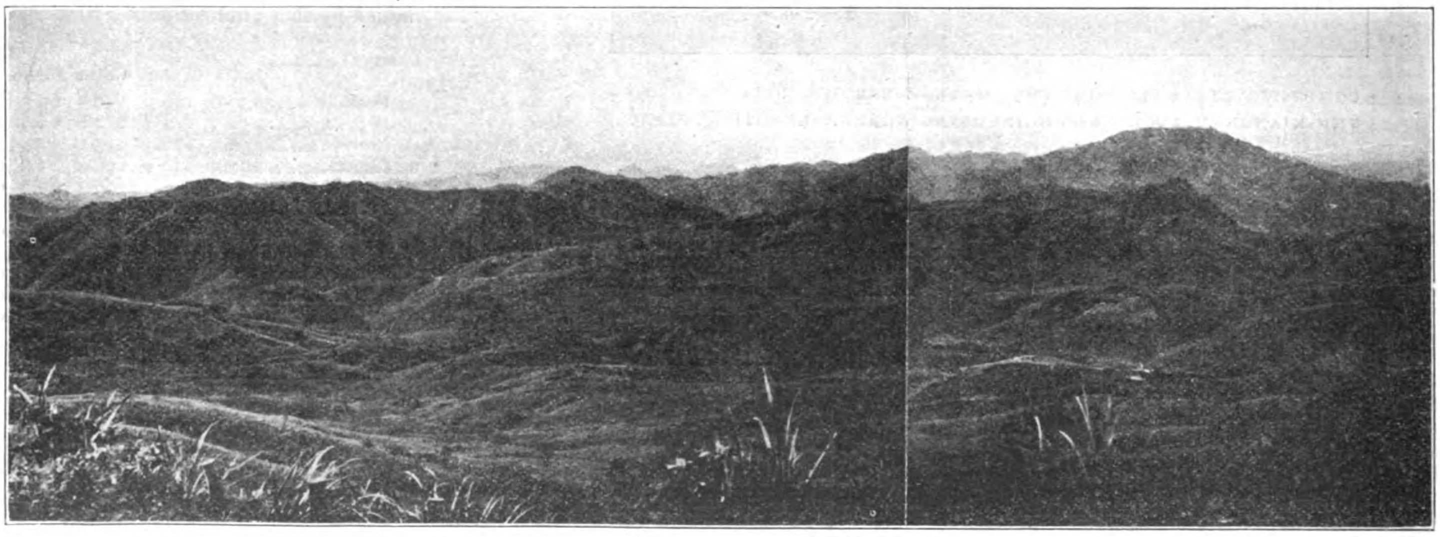
INTRODUCTION.—The Island of Cebu shows outcrops of coal in almost all portions of its area. Abella in his "Descripción de Cebú," * cited as many as fifteen localities scattered from one end of the island to the other, and on both coasts. Some desultory mining has been carried on near Mount Uling, in the barrios of Lutac, Alpaco and Guilaguila, but the most serious undertakings in the colliery line were the workings at Licos and Camansi in the region behind (west of) Compostela and Danao, on the east coast, about 50 kilometers north of the city of Cebu. The last active work in this field was done in 1895, for the insurrection broke out in 1896, and since the American occupation no production has been recorded, although diligent exploration and development has been resumed.

A topographic and geologic survey of the Compostela, Danao and Carmen areas was undertaken in the early part of 1906 with the intention of aiding in this work. The area which is mapped comprises approximately 100 square kilometers (36 square miles). Messrs. Goodman and Ickis executed the topography, using transit and stadia, their work being tied to the Liloan light-house, the position of which has been closely determined by the Coast and Geodetic Survey. I was engaged in mapping the geology during the months of December, January and February; in this work I was assisted during the latter portion of the time by Mr. Goodman.

The difficulties attendant upon all tropical work have made it impossible to indicate as many details as we desired to. The two great obstacles to geologic work in Cebu are the exceptional growth of cogon grass and the very thick formation of talus. Outcrops consequently are not sufficient in frequency to allow of accurate correlation of many of the strata. If the latter were undisturbed, or even approximately so, as is the case in horizontal formations, we might infer that what we found to be true in one part of the field would hold in all parts, but in Cebu we have found such serious disturbance, the dips and strike of the beds changing so radically within only a few meters, that it would be extremely hazardous, save in a very general way, to attempt to predict the courses of these formations beneath the surface. During the progress of the mapping we found ourselves



ABOUT 1 MILE EAST OF CAMANSI ON THE LINE OF THE OLD TRAMWAY TO THE COAL WORKINGS



PANORAMA SOUTH OF THE COT-COT RIVER FROM CAMP CLARK

*Abella y Casariego, Enrique: Rápida descripción física, geológica y minera de la Isla de Cebú, Madrid (1886).

very rarely able to trace boundaries on the surface, but in time we came to judge of the underlying formation with fair accuracy by studying the topography and the character of the vegetation. All who have tried to do exploratory work through cogon grass and "ticbao" will agree that, even though the dense jungle of such districts as Batan Island is lacking in Cebu, nevertheless for certain features of the work the kind of country we have encountered in this work can be just as bad. In order to run a traverse along an arroyo, the only place where there is any hope of reaching outcrops and obtaining a key to the structure, I was forced actually to tunnel my way through the vegetation with the help of natives and bolos. This will give some idea of the difficulties we encountered. In one afternoon we covered approximately one-half mile. In a way it might appear that I owe an apology for publishing anything at all on this region at this time, but I feel that even the incomplete data which I can furnish will give information which will be of some guidance to those financially interested in the field and of interest to geologists in other lands.

I shall refer readers of this paper to the work of Abella, cited above, for an account of the mining work done in Spanish days in this field; however, I shall exhibit one map which was made after his publication. An examination of his geologic map will show that he did not attempt to map the region in detail, so that we feel that the new one will be a distinct advance on what has already been done. I shall add no more in regard to the present state of exploration and development than that there are two companies on the ground who are making vigorous and honest efforts to ascertain the value of the properties. There are many interesting features in connection with the work which I would like to publish, but both companies in extending me many courtesies and showing me everything have requested that for the present at least this information be considered confidential.

GEOGRAPHY.

General.—The area under discussion comprises a rectangular tract of about 100 square kilometers (36 square miles) of territory on the upper waters of the Cot-Cot and Danao Rivers. The eastern boundary of the district is the front, or coast, range of hills which includes Mounts Licos and Mangilao; the western is formed by the Cordillera Central, which is the long, sinuous backbone of the island. The area extends as far north as a line east and west from the *pueblo* of Cármen, while Mount Acsubing marks its southernmost extension.

GEOLOGY: ECONOMIC.

History of the District.—As the complete history of the discovery of coal and operations in Cebu is recorded in "The Coal Measures of the Philippines" * which is simply a compilation and translation from the Spanish records, I will only in this place summarize what was given.

Coal was discovered in Cebu in 1827. The first concessions in the Compostela-Danao region were solicited by Isaac Conui in 1871. A wagon road was built from Cot-Cot cove to the workings at Dapdap in 1877. The formation of the association known as the *Sociedad Nuevo Langrea* and the beginning of actual work took place about 1890. The construction of a tramroad from Danao to Camansi, and from Compostela to Mount Licos, was undertaken in 1895. Then followed the Spanish-American war in 1898. In this year all the concessions in this district came into the hands of Mr. Enrique Spitz. These concessions have changed hands again and are controlled by the Insular Coal Company, which is now in the field carrying on exploratory work.

Operations.—It will be sufficient at the present time to state that two companies, of which the Insular Coal Company is one and the other a New York syndicate, are vigorously investigating these fields; the Insular Coal Company in the Mount Licos and Camansi regions, the latter in the Cajumayjumayan Valley. As both these companies seem to be very much in earnest and backed by responsible men who command considerable capital, we should obtain as a result of their investigations a far more thorough knowledge of these fields than we now have.

The district is one in which the geology is very complicated but not more so, it is believed, than that of other coal-bearing areas of the Archipelago. It certainly has some features possessing advantages over other parts of the Island of Cebu, although coal may be found in almost all districts of the island.

* Burritt, Chas. H.: Wash. (1901).

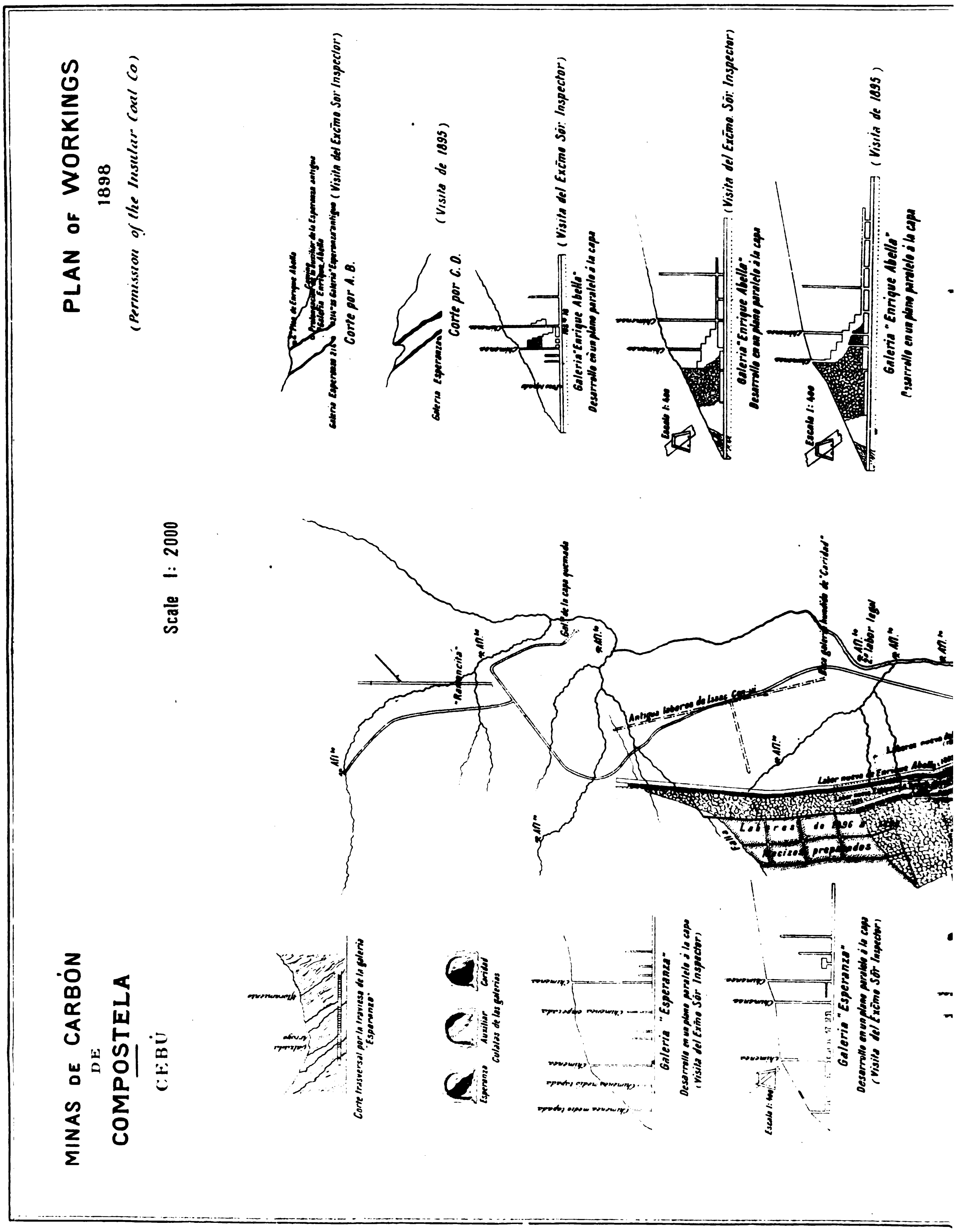
Coal seams.—The three fields at present being developed are rather limited, but amply sufficient for a considerable production of coal. Various estimates have been made of the possible tonnage, some of which are founded on guesswork and are very wild. A very conservative estimate would be 2,000,000 workable tons in the Cajumayjumayan valley and two to four million in the combined Mount Licos and Camansi fields. The coal seams are rather highly inclined, from 30° to 90°, which would necessitate some system like the "Battery" being employed. The proper drainage of the workings will be a serious factor. Both the roof and floor are weak, the floor being of shale and fire clay, and the roof of shale or friable sandstone. Great care will need to be taken in timbering. There will also be increased expense for timber, because the greater part of it will need to be brought from some distance, probably from another island (see Forester Everett's timber report in the first part of this paper, p. 384). Methods for preservation of mine timbers must be devised. However, when molave is used the timbers will last for many years; in fact I have examined such timbers which were for nearly ten years completely buried in loose earth in the "Enrique Abella" tunnel and they were perfectly sound. It must be remembered that timber does not last underground proportionately as long in the tropics as in higher latitudes. Forepoling and lagging will be necessary in the shafting and drifts.

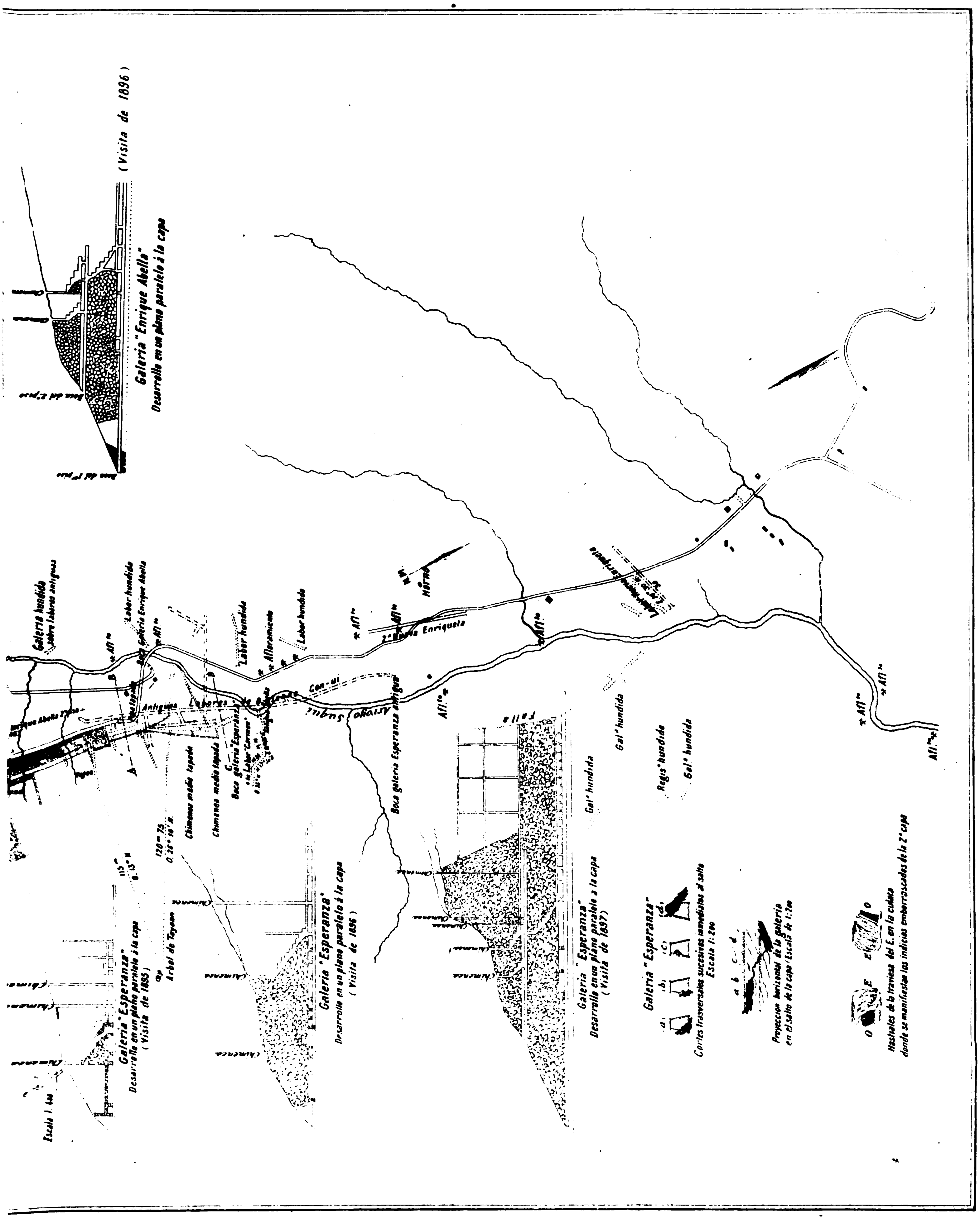
There is evidence of considerable minor faulting, but probably none which will seriously affect mining operations. There are five known coal seams, at least three of which should be profitable; two of these are over ten feet thick in one part of the field. The following beds were encountered at Mount Licos, from west to east, that is from lowest to highest:

1. The "Cármen;" thickness 1.60 meters, strike NE.-SW., dip 30' SE.; 40 meters interval.
2. "Esperanza;" 50 centimeters, strike the same as above, dip same; 9 meters interval.
3. "Enrique Abella;" thickness 1.20 to 1.50 meters, strike N. 23° E., dip 40° to SE.; 40 meters interval.
4. "Pilarica;" thickness 1.40 meters, strike N. 23° E., dip 30° SE.

There formerly existed over 300 meters of drifts at the old Licos workings. About 100 tons of coal, taken from the "Esperanza," "Ramoncita" and "Enrique Abella" galleries

VIEW OF THE COUNTRY IN THE VICINITY OF SIGLO XX. MOUNT LICOS IN THE RIGHT BACKGROUND. THE FORMATION IN THE FOREGROUND IS EXTRUSIVE IGNEOUS ROCK


PLAN OF WORKINGS
1898
(Permission of the Insular Coal Co)
Scale 1: 2000
MINAS DE CARBÓN
DE
COMPOSTELA
CEBÚ
Corte por A. B.
Corte por C. D.
(Visita de 1895)
Galeria "Enrique Abella"
Galeria "Esperanza"



Galeria "Enrique Abella"
Desarrollo en un plano paralelo á la capa
(Visita de 1896)
Galeria hundida sobre labores antiguas
Labor hundida
Afloramiento
2ª Boca Enriqueta
Boca galeria Esperanza antigua
Arbol de Tayaon
Chimenea medio tapada
Galeria "Esperanza"
Desarrollo en un plano paralelo á la capa
(Visita de 1895)
Galeria "Esperanza"
Desarrollo en un plano paralelo á la capa
(Visita de 1896)
Galeria "Esperanza"
Desarrollo en un plano paralelo á la capa
(Visita de 1897)
Gal.ª hundida
Regis.º hundido
Galeria "Esperanza"
Cortes trasversales sucesivos inmediatos al salto
Escala 1:200
Proyeccion horizontal de la galeria en el salto de la capa Escala 1:200
Hastiales de la traviesa del E. en la cuñeta donde se manifiestan los indicios emborrascados de la 2ª capa

have been on the dump for three or four years. In this time the coal has not taken fire, nor has it "airslacked" very greatly, which bodes good for its handling and storing. The coal throughout the district is remarkably free from dirt, "butter" and "bone" and is quite low in sulphur.

We believe that this coal will ultimately find its greatest utility as a gas producer and with this end in view it should be mentioned that Dr. Cox, of this Bureau, is devoting much of his time to experimenting on this problem. It is hoped that at no distant date the Bureau of Science will be able to make a practical demonstration in this direction. The Philippine Commission has just appropriated a sum sufficient to cover the expense of installing a producer gas plant at the laboratory of this Bureau.

Dr. A. J. Cox has added a contribution from his own chemical investigations. His report is as follows:

The quality of the coal from the Cebu fields is no exception to the general average of this commodity in the Philippines. I have been over a large part of the territory and have analyzed samples from all the sources where coal is known to occur. None of the samples show a woody structure, and in general the coal is compact, lustrous and commonly has both hackly and conchoidal fracture. The coal as mined is very black, but when finely powdered (60 mesh) it assumes a tinge of brown. It is of the non-coking, sub-bituminous to bituminous variety. The latter class is perhaps best represented by that from the Compostela region. In this field the active work which is now being carried on is beyond the prospecting stage, so that more definite information is at hand regarding the extent of the deposits and thoroughly average samples have been obtained for chemical work. A study of the volatile matter from this coal shows it to contain a fairly good percentage of heavy hydrocarbons and it could probably be used successfully as a gas coal. The composition of the gas and the yield from this coal is not greatly different from that obtained from Polillo * coal. Attention has already been directed to the peculiar, elliptical, pit-like markings which characterize Compostela coal.†

I have analyzed a great many samples from both the Carmen and Compostela fields. Some of the results have already been published § and other more recent determinations will be printed in a future communication. Barring diluents, water, ash, sulphur, etc., and considering the relation of the percentage of volatile combustible matter to fixed carbon, which by many authorities is taken as the criterion of classification, there is a surprising regularity in the analyses of all of the samples taken from a single field. The averages of all the samples give the following results:

COAL-MEASURE SHALES DIPPING TO THE EAST IN SUQUI CREEK

Averages of analyses of Cebu coals.
[The figures give percentages.]

Constituent.	For the Carmen region: Minimum.	Maximum.	Average.	For the Compostela region: Minimum.	Maximum.	Average.
Moisture	13.5	21.6	16.70	7.5	9.5	8.60
Volatile combustible matter	33	38	35.10	35.1	38	36.95
Fixed carbon	38.7	49.3	43.92	51.3	52.8	51.75
Ash	1	8	4.28	1	3.8	2.70
Total	......	......	100	......	......	100
Sulphur	.1	2.7	.67	.2	1.3	.71
Calorific value in calories	4,820	5,920	5,330	......	......	6,380

Although a careful study has been made of all of the Philippine coals thus far discovered, not a single sample of coking coal has been found. The usefulness of a coke in this Archipelago is well recognized, for were it to be readily accessible the iron industry would be in line for development. In view of this I have tried to make coke in various ways. The coal from the Compostela region yields a certain per cent of tar and it was thought that by mixing this product with the coal itself before charging into the cokeoven, a good coke might result. Several experiments were made. The pulverized coal and tar in varying amounts up to 12 per cent of the weight of the coal were warmed to 110°, intimately mixed and then subjected to a heat similar to that of a coke oven; in fact, the heat was varied to cover the various ranges present in coke ovens. All experiments gave negative results. In none of them was there more than a semblance of coke, consequently for the present we must give up the hope of obtaining coke in these Islands.

I have added below a copy of an analysis of the upper limestone which will be of interest in view of the fact that possibly a cement plant will be erected in this region at some future date. As this paper has been devoted almost entirely to the question of the coal, I shall not discuss this matter further at the present time.

The absence of magnesia which seems to be characteristic of recent limestones, should be noted.

Analysis of the limestone.

	Per cent.
Insoluble acid	0.36
Fe_2O_3 } Al_2O_3 }	.18
CaO	55.62
Loss on ignition	43.50
H_2O at 110° C.	.17
Total	99.83

LABOR.—Labor conditions on the whole are good in Cebu, and in the Compostela-Danao district the natives have more or less familiarity with underground work, gained by experience of a score of years under the tutelage of the Spaniards. The present wage in this field is 40 centavos and subsistence, for the outside laborers, and 50 centavos for the underground man; however, of late the Insular Coal Company has found it best to pay so much a foot for driving a drift. The price per foot will of course vary according to conditions. The Philippine Railroad Construction Company has found the native labor to be very satisfactory. In their work thousands of natives are used at a wage of 50 centavos and subsistence, the subsistence is arranged for by contract with a Chinaman. It is the belief of many in these Islands that the Visayans are the best laborers of any of the tribal groups. However, this is a matter more or less of personal opinion.

TRANSPORTATION.—The new railroad from the city of Cebu to Danao, a distance of 32 kilometers (20 miles), is completed at this date. From Danao to the Camansi workings is a distance of about 8 kilometers (5 miles) with a rise of 75 meters (250 feet). There is now a tramroad over this course, an heirloom from the Spanish régime; but this will need to be replaced by new rails and more clearing will have to be done before any extensive work is undertaken. The transportation problem in the other parts of the district will not be so simple and I believe overhead cables or inclined planes will be found to be necessary.

* Cox, A. J.: *Journal of Science* (1906), 1, 893.
† *Ibid, Ser. "A," Gen. Sci.* (1907), 2, 50.
§ *Ibid*, 52.

THE VALUE OF AMERICAN CONSULAR REPORTS

By JOSEPH J. KEEGAN

One feature of the American Consular Service which attracts considerable notice from the public and press of the United States, and especially from that growing number of manufacturers whose interests are more or less attracted to opportunities for the expansion of their export trade, is the pamphlet issued by the Bureau of Manufactures of the Department of Commerce and Labor entitled *Daily Consular and Trade Reports*.

These reports, as the name implies, are published daily and circulated freely by the Bureau among manufacturers, trade papers, Chambers of Commerce, and others interested to the extent of making application to the Bureau for same. The evident intention of the Bureau in issuing these reports daily is to bring to the notice of the American manufacturer and exporter, with the greatest possible despatch, the most important news of interest regarding opportunities presenting for the introduction of American goods, in different foreign markets, received by the Bureau from its correspondents abroad.

We are all familiar with the average criticism bestowed on the Consular Report, as it is better known in the daily papers of America, and those of us who read journals devoted to export trade know that much space is given up, throughout the course of a year, to comment on the Bureau's pamphlets. This proves that the American people are sufficiently interested in the exploitation of foreign markets, but it does not prove that the information that is given them by the Bureau of Manufactures is as substantial and authentic as it should be. As a rule only optimistic reports are noticed in the daily press, but one occasionally sees unfavorable ones, the latter usually consisting of abusive remarks directed against the American manufacturer for his lack of enterprise, in catering to the wishes of the foreign buyer, or for what is commonly alluded to as "defective American packing."

Not only by the space devoted by them to comment on Consular Reports do the daily

MR. JOSEPH J. KEEGAN OF THE FIRM OF MESSRS. ROSENCRANTZ & KEEGAN, THE WELL-KNOWN AMERICAN "DRUMMERS."

papers prove that the American people are interested in learning things about foreign markets, but by the readiness with which interviews with returned tourists, relative to trade opportunities in the countries visited by them, are shown under big headlines.

I have read scores of such interviews in the last few years, purporting to give impressions of Asiatic markets and, I have no hesitancy in saying that in not a single case did the published statements come even within hailing distance of the actual conditions existing. This statement of mine will be concurred in by any practical business man who has had to meet, face to face, local conditions in various Asiatic markets and contend with them as both Mr. Rosencrantz and I have been doing for a number of years.

Taking the Consular Report as it exists to-day and, conceding that the intention of the Bureau, in circulating it, is to benefit the American manufacturer and exporter, I will look at it from the viewpoint of a manufacturer, consider its component parts, and attempt to arrive at a correct appraisement of it. As closely as I can observe the average Consular and Trade Report is made up of:

> Extracts of letters received from American Consular officials regarding trade opportunities in the places in which they are stationed.
>
> Letters giving the expert (?) opinions of the staff of Special Agents sent abroad by the Department of Commerce and Labor to study existing conditions in the different markets of the world and report on the opportunities presenting for the entry of American goods.
>
> Items of news of supposed interest to American manufacturers, principally historical and extremely statistical, relative to trade and extraneous matters in foreign countries.

Now let us see, by analysing parts mentioned above, what value the Consular Report, taken as a whole, has to the manufacturer and whether the intention of the Bureau to benefit him through the medium of the Report is successfully carried out.

Take the letters from Consular officials as they are given to the manufacturer in the daily pamphlet sent out by the Bureau. In most cases the writers of these letters have little or no business training and, consequently, could not possibly be expected to give other than vague and (from a practical commercial viewpoint) weird reports on trade conditions. Being in the service of the American Government these men are not hampered, when creating trade reports, by any qualms regarding the absence of sufficient preliminary business training. On the contrary the less they know about business the more reports they write.

It is a well known fact that the average Consul, upon arriving at his new post, sends in reports of trade conditions, etc., within a few weeks of his arrival and continues to do so until he has lived long enough in the place to become acclimatized. A Consul usually makes most of his reports in his first year in the service. In that period of his official career he feels the burden of his responsibility to the American government to be very heavy indeed and makes it his duty to show the State Department what a clever move was made in his appointment.

His first reports invariably say that the people in the country he is stationed in are "on the eve of a grand awakening to merits of American goods" and "require all classes of American goods." He points out the difficulty some person had in obtaining an article of ordinary every-day use (well known in America) and gives it as an illustration to show that American manufacturers are not wide-awake. As soon as he becomes acquainted with his surroundings and gets in touch with the figures given out periodically by the Customs at the place where he is stationed, he utilizes masses of statistics, generally dealing with total volumes of various articles either imported or exported by the country, as bases for his reports.

Another feature of this type of Consular official is the regularity with which he sends on complaints to the Department regarding errors committed by American manufacturers in their business dealings with local merchants, poor packing of American goods, and the American system of "cash with orders," as being the prime causes of the absence of American manufactured articles in the country his report emanates from. A report from one of these men without that very ancient and honorable complaint about "catalogues printed in English being of no use to the native buyer," is seldom seen, and of equal rarity is the report without sage advice to American manufacturers, to send out samples to "responsible local merchants," or "bright energetic representatives to expound, on the spot, the merits of American goods."

There are, too, in the Consular service, many men of business ability who would be able to write intelligent reports if they had sufficient time at their disposal to devote to inquiry but, as is the case at present, their time is well taken up during the course of the day in attending to the routine work in their offices. The reports sent in by Consuls of this class are few and far between, due probably to the fact that they have had sufficient preliminary business training to enable them to realize the difficulty of making an honest and complete report regarding the possibility of introducing American goods.

As to the subjects dealt with in Consular Reports I will give some samples of the raw material handed to the American manufacturer by the Bureau of Manufactures and the reader may draw his own conclusions as to its value to a manufacturer. Here is a bright one:

"Consul McNally, writing from Liege on statements in trade journals concerning the supply of iron ore, estimates that it may be exhausted before the twenty-first century. Trade journals are not good authority on that question. New supplies of ore are constantly being discovered. There is no reason for uneasiness on that score." (May 17, 1906.)

This is evidently final. No apprehension need now be felt by any poor manufacturer of iron or steel regarding his supplies for the

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RECOMMENDATIONS.—I would caution any company which intends any great outlay of money, thoroughly to explore the field with drills or by means of numerous drifts. I do not believe the diamond drill will be best for these soft formations, but a churn or a calyx drill should be on hand for certain parts of the work. The disadvantage in using such a drill is the difficulty found in obtaining an accurate record of the formations encountered. It would be foolish, judging from the folded condition of the rocks, to suppose that the beds will continue as they appear along the outcrops. Without more records from shafts, drifts or bore holes, I should consider any estimates as to the quantity of coal, the position of the beds and their condition to be little more than guesswork.

The vicinity of Luguayan Creek on the eastern edge of the map should be prospected, as here the coal is found exposed below the upper conglomerate. It is probable that in this position the beds are less folded than they are farther to the west. I should even go so far as to predict the finding of good, regular beds underlying the more level country near Danao. The saving in transportation and the greater regularity of the beds might more than offset the cost of sinking a shaft and pumping.

I may also add that drilling in the vicinity of the andesite formation might, not improbably, discover anthracitized coal, should the andesite come in contact with the coal bed at any point. This has been known to be the case in the anthracite region of Colorado, in the United States.

In conclusion it should be said that the coal formation in this district does not differ greatly from that of Batan Island and operations in either field will necessitate considerable outlay of capital. Furthermore, the problem connected with coal mining in either field will tax the ingenuity of any engineer and it will be a saving in the long run to spare nothing in order to get the best man available.

NOTE—The prediction in the above article, that coking coal might be found near igneous rock, has, according to later reports, been verified by the discovery of coking coal in the vicinity of Sudlon, through which region igneous rock is also found.

next few years at least. When it comes to a sound prognostication the Consul at Liege is, most assuredly, better authority than a trade journal in America.

This should be very interesting to a manufacturer:

"Swine fever has become almost extinct in Great Britain," writes Consul Mahin, of Nottingham. "This is due," he says, "to the scientific, measures of the British board of agriculture, working with local authorities. There were 3,140 cases in 1901, and only 817 in 1905. The entire country is divided into groups, with effective application of regulations."

In the issue of Jan. 6, 1906, Consul McNally again comes to our notice. One and a half pages are taken up by his letter regarding a meeting held in England by the board of agriculture to determine the question of the value or non-value of birds to farmers. The letter is based on an article printed in the *London Daily Mail* and goes into minute detail on the diet of various birds. The value of this report to American manufacturers is incalculable.

In the issue of Jan. 6, 1906, there also appears an article, due to the foresight of Consul-General Guenther, of Frankfort, Germany, in sending in a German paper containing an item he considered of interest. Here it is:

"German papers forwarded by Consul-General Guenther, of Frankfort, state that the importation of Chinese pigtails, which are imported into Europe in packages of 1,000 lbs. each, was recently the subject of court proceedings in England. A laborer who was employed in preparing camel's hair, cheap foreign wool and human hair, had been taken sick with fatal inflammation of the spleen (milzbrand). In order to fix the cause it was ascertained that the pigtails, after being cut off the heads of Chinamen, were at once braided and packed. The possibility exists that the hair comes from the head of a Chinaman who suffered from the plague or some other contagious disease. Two previous cases of 'milzbrand' have occurred among the workingmen of the English establishment. It is therefore indicated that these pigtails should be closely examined under the microscope, and the result may be to prohibit their importation."

The deep interest in the welfare of American importers of Chinese pigtails, which possessed the Frankfort Consul-General, was evidently a sufficient cue to him to send on the above tragic commercial news. Although fairly bristling with sensation, the news is bald of any commercial value. It would require an exceedingly minute microscopic search to discover any benefit to an American business man in such hair-raising stories.

In another issue a half page is devoted to an article on "Race Suicide in England," in which figures are given on the declining birth-rate of England. In a medical journal, or even in the daily press, such an article would not be out of place, but no excuse can be offered for its appearance as a trade report.

Having sufficiently commented on the few freakish excerpts given above I will add, before proceeding further, that the examples given are not any more weird than dozens of others I have read in the *Daily Consular and Trade Reports*. I am unfortunate in not having reports of later dates than those given to offer as examples but, as the Bureau continues to publish news of similar value, these will serve as illustrations equally as well as later ones.

Of course, there are reports on more sensible subjects in the pamphlets, as well, but none of them have much more value to the American business man. The reason for this is not hard to understand, as such reports, whether they come from a Consular official or a Special Agent are never thorough. No complete data is ever found by a manufacturer n the reports, and complete and authentic information is what a manufacturer must have in order to transact business successfully and meet competition, whether the place he aspires to trade in be Muscatine, Iowa, or Moulmein in Burma:

A manufacturer is told that there is "a growing demand" for American goods of the class he makes, in such and such a place, and that "at present the cheaper European makes control the market" but, "if the manufacturers in the United States will make the proper efforts" they will get "a share of this vast trade." To assist him in "making the proper efforts a table of statistics is given, none of which deal with necessary details regarding the net cost, at the European point of shipment, of the articles which control the market, freight and insurance rates, landing and other local charges at the point of destination, together with all possible data regarding strength and dimensions of material used in packing the goods. These details are not given. Neither is the manufacturer told what extra commissions, petty charges, etc., are tacked on to the original cost by the local commission agent who imports for the native buyer. Many other details regarding invoicing, drafting, etc., are likewise omitted. Some names of possible buyers are perhaps given but no American or European references are named to whom the manufacturer may apply for information as to the commercial standing of the merchants.

Where faults are found with American packing and with American shipping methods, no remedy is offered and the vague hint that "the packing will have to be improved" is the only assistance the manufacturer can hope for.

I am not attempting to prove that the manufacturer is always the sufferer and solely through the fault of the system of the Bureau of Manufactures, but I do contend that a great deal of the blame that is laid at the doors of the American manufacturers for their lack of enterprise and slack export methods, would not be possible were the manufacturers properly assisted, by being given substantial information by the Bureau.

In the United States, as in other countries, there are two kinds of manufacturers; the one who understands export trade and the one who does not. The former is greatly in the minority but usually has had sufficient hard, practical experience with foreign trade to be independent of any slight assistance which the Consular Report might possibly give him. Of him I will say little except that a great deal of the abuse that is earned by inexperienced manufacturers is heaped on him as well, and much injury done to his trade abroad by the reckless manner in which the Bureau of Manufactures scatters broadcast complaints about "defective American packing." A great deal of fear is inspired by the utterances of the Bureau of Manufactures' pamphlet, in foreign countries, among merchants desirous of importing American goods, and many an order has been diverted elsewhere that otherwise would have been sent to America had it not been for the bogey of "bad packing" which the Dalny Consular Reports frighten away business with.

I know personally that throughout the Eastern countries one hears a great deal about faulty American packing and American ignorance of export trade requirements. From my observations I can truthfully say that, in a great many cases that I looked into on the ground, the American manufacturer was at fault but it was nearly always the inexperienced one, who had still to learn the A B C's of shipping. I have seen a great many cases of mistakes in packing by makers in other countries, as well, but the Englishman, Frenchman or German one meets is always patriotic enough to contend that, "it is an accident" and that manufacturers in his country *never* make mistakes in packing. No European government makes a business of publishing allegations against its manufacturers for the world to read.

Sensible assistance is given to their manufacturers by the British and German governments and *to their manufacturers only*. Their systems of obtaining information regarding trade opportunities might well be copied by our government. The Japanese government, too, has a very well equipped system, but not one of the three governments mentioned goes about obtaining its commercial information in the way the American government does.

No hearsay information, such as given in the *Daily Consular and Trade Reports*, can be said to have aided them. Now, is it fair to these manufacturers, whose foreign business is conducted in a style not to be surpassed in Europe or anywhere else, for the Bureau to publish articles belittling American manufacturers in general, thus undermining in an indirect way their long established business abroad? If the Bureau was in a position to give clear cut, concise and business like reports to such manufacturers, to aid them, they would be able to utilize the information and materially help to increase America's exports. Being usually hard headed men of business they cannot, unfortunately, utilize either the verbose and romantic writings of the Special Agents or the statistical report of the commercially inexperienced Consular official.

On the other hand, the manufacturer who does not know how to export his wares, and who is the cause of ninety-nine per cent of the complaints, goes gaily along doing his export business on catch-as-catch-can lines and never learns. He is not able, from his limited experience in exporting, to either detect sound advice or to utilize it if it forces itself upon him. Being ambitious to build up a trade outside of the United States, he reads extensively of the world at large so as to understand far-off conditions and gain information possibly helpful to him. He seizes with avidity any morsel of trade news that comes his way—so long as it is cheap, and the cheaper the better. He takes on the character of a furnace and consumes all information that he can get hold of, good, bad, and Consular Reports alike. He radiates to a certain extent, but not to a degree equal to the volume of fuel consumed and does not get up sufficient steam to make the least headway in getting foreign business. The net result is smoke. This is due to the fact that he applies to the quality of the information he consumes about as much judgment as a furnace would apply to a ton of coal.

In most cases this type of manufacturer writes letters to Consuls in the places he hopes to do business in. In fairness to the Consuls it must be admitted that they receive from manufacturers of this class enough inquiries in the course of a month to keep them busy for two years in making replies to.

If America is to build up her foreign trade she must educate her merchants to cope with it. The inadequate system our government is now feebly attempting to use must go and a thoroughly American business-like system be invested in its stead. The American manufacturer and merchant are taxed to help educate foreign immigrants and make citizens of them and much good results therefrom, but a vaster benefit would accrue to America and its people were similar sums expended to educate our American business men to the opportunities for trade existing abroad and to instruct them how to handle export business.

The extension of America's trade abroad means more money paid into America's banks by foreign countries every year. More money brought into the country aids America to develop her immense resources and to make her more independent of outside capital. Why should not the improvement of our foreign trade be, therefore, as important a measure as the improvement of our rivers and harbors, and the development of our agricultural resources?

In closing this article I will say that I feel that every business man who has had personal experience in foreign markets will concur with me in the views expressed in the foregoing paragraphs as to the absence of value in the *Daily Consular and Trade Reports* to the American manufacturer and exporter, and agree that some radical change for the better must be made without delay if American foreign trade is to increase.

As a practical business man with sufficient successful experience in foreign markets to enable me to judge fairly I must say that I am strongly of the opinion that the present Consular and Trade Report is of no substantial value. The trade bodies of the United States should soon come to a realization of the worthlessness of the system, and unite in forcing the American government to a realization of the failure of the Bureau of Manufactures in giving sound information to manufacturers, with an object of either improving the system or doing away with it altogether. At all events, it is to be hoped that the spirit of investigation which is all the rage in America at present will possess the Government to a degree sufficient to aid the business men of America by improving the system of disseminating trade information now in vogue in the Bureau of Manufactures of the Department of Commerce and Labor.

—JOSEPH J. KEEGAN.

RAILWAYS IN CHINA

Tsen Chun-hsuan has memorialized the Throne suggesting the advisability of having China's railways under proper unified control with a proper system. The Board of Communications, after having perused the memorial, by Imperial order sent in its views to the Throne. The views are divided into three sections. One.—Centre of all the railway systems in China. Two.—Four Trunk Lines. Three.—Branch Lines.

I.—Centre of the railway systems in China.—It is stated that since the Tientsin Shanhaikuan Railway, the Railway carrying the mining products of Kaiping Coal Mines, and Peking-Hankow line are the only lines of importance at present and that Hankow should be made the centre of all the railway systems in China. Such is the majority of opinions expressed by people who talk about the railway administration of China. There are others who maintain that Hsiangfu is the best place for such a centre. From political geography these views are not to be adopted. The place which is the capital of the sovereign of the state should be the centre of the systems. In ancient times the centre of traffic was always at the centre where tribute was sent from the east, west and south, and Peking should undoubtedly in any case be the centre of the railway systems of China.

II.—Four Trunk Lines.—What we call four trunk lines are—

1.—Southern.—When the Peking-Hankow Railway connects with the proposed line between Hankow and Canton, when it is completed, it will be made the Southern Trunk line by connecting Wuchang and Hankow by ferry boat.

2.—Northern.—The line to the North is one between Peking and Kalgan and regarding the proposed Mongolian Railway made by Prince Su the Board has already mentioned that the Peking-Kalgan line should be extended to Kulun (Urga) and then to Kiachta and this line will become the Northern Trunk line.

3.—Eastern.—The line to the East is one called Kuanneiwai line or the line between Tientsin to Hsinmingtung together with the line between Hsinmingtung and Mukden which has been restored from Japan. Regarding the proposed line of the Hehlungkiang province made by Cheng Teh-chuan, the governor of that province, the Board of Communications has stated that the line should be extended to Aigun via Chiaonan, Tsitsihar. When this line is completed this may be made the Eastern Truuk line.

4.—Western.—The line between Chengting and Tayuen will be joined with the Tungpu Railway and then it will further be extended to the west with the line between Tungkuan and Lanchow as proposed by the ex-Governor of Shensi, Tsao Hungksun, and thence to Ili. When this is completed this may be the Western Trunk line.

III.—Branch lines.—The branch lines of the Southern Trunk line.

1.—Peking to Chengchow and thence from Kaifeng-fu, Honan, to Anhwei.

2.—From Hsmyangchow to Kiangsu via Kiangpu.

3.—From Hankow to Hsianfu.

4.—From Wuchang to Kiangsi.

5.—From Hunan to Kueichow.

6.—From Canton there will be four branch lines.

a.—Canton-Kowloon.

b.—Canton-Macao.

c.—Huichow-Chaochowfu-Amoy.

d.—Wuchow-Kueilin.

All the lines in Honan, Anhwei, Kiangsu, Chekiang, Kiangsi, Fukien, Hupeh, Hunan, Shantung, Kueichow, Kuangsi and Kuangtung will be included in these branch lines.

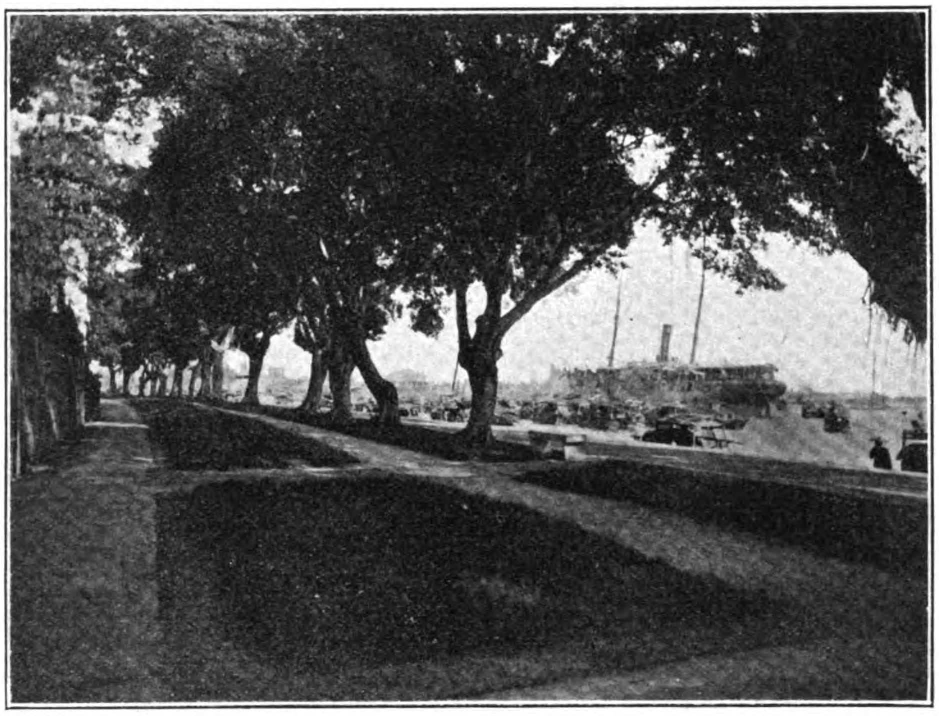
2.—Branch lines for the Northern Trunk lines.

When the line reaches Kalgan from Peking, as Cheng Hsun, the Lieutenant Military Governor of Chahar, has pointed out, there should be two branch lines, namely: one to Jehol towards the east to connect Kalgan with that place and another to Suryuan (Kukukoti) towards the West to connect the same with Kalgan and when the line reaches Kulun or Urga it will again be divided into two branches, namely: to Outer and Inner Mongolia. All the lines in Mongolia and Jehol will be included in the branch lines of the Northern Trunk line.

3.—Branch lines for the Eastern Trunk Line.

At Tientsin—Tientsin-Chinkiang Railway via Kiaochow and Tsinanfu. At Kaopangtse—a line between Yingkow and Port Arthur.

At Mukden the line runs towards the east to join the Russian Manchurian Railway. The lines in Shantung, Mukden Kirin and Hehlun-kiang are to be included under this trunk line.



LOOKING DOWN THE BUND, BRITISH CONCESSION, SHAMEEN, CANTON

4.—Branch lines for the Western Trunk line.

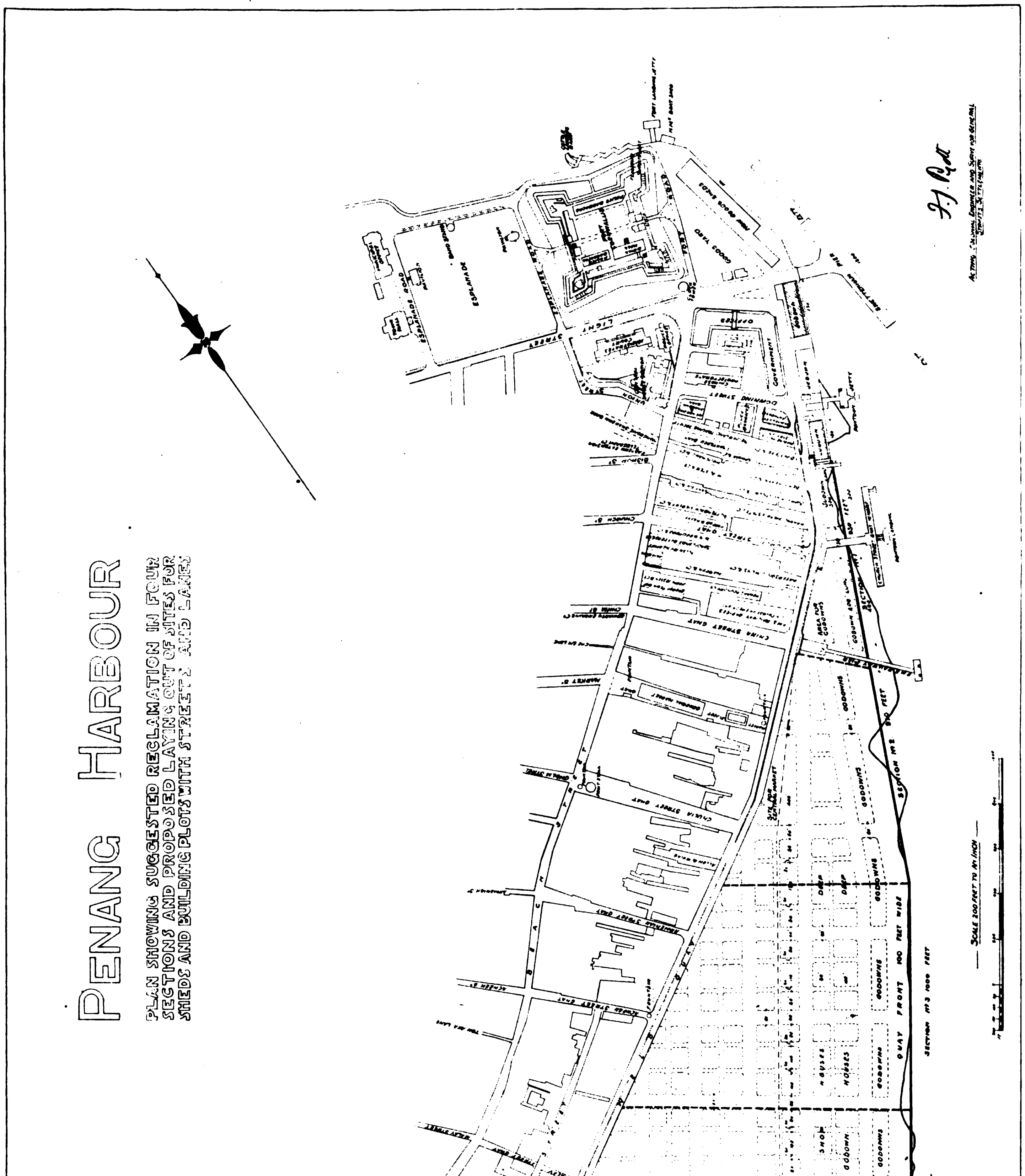
At Taiyuan a line to Tatung to connect with the Kalgan Suiyuan line. At Pingyang a line to Tsechow to connect with the Tsechow-Taokao line. At Tungkuan a line to Loyang to connect with the Loyang Honan Railway. At Hsian a line to the northwest via Pinglin to Ninghsia, another to the southwest via Hanchung to Chengtu which will join the Szechuan-Hankow Railway on the east and the Yunnan Szechuan Railway on the South and thence to the Yunnan-Annam and the Yunnan-Burma lines. On the west at Lanchow lines to Tsingkai (Kokonor) and Thibet will be built as branch lines. The lines in Shansi, Shensi, Kansu, Hsinchiang, Szechuan, Yunnan, Tsinghai and Thibet will be included under this Trunk line.

The order of building these lines should be arranged by considering both military and commercial convenience. On the northwest it is necessary to connect with the borders for the benefit of military purposes and also to connect with the sea coast on the southeast for the convenience of commercial purposes. If provincial governments should be established for Mongolia and Thibet it will become very important to build lines to Urga and Thibet urgently and leave Tsinghai and Jehol as secondary. For the purpose of trade development on land and sea the Hankow-Canton line is the most important to be speedily completed and the Szechuan-Hankow and Yunnan-Szechuan will be placed as secondary. Recently the railway affairs in Kiangsu, Anhwei, Kiangsi and Fukien are mostly dealt with by the local natives by raising funds themselves. In Yunnan, Kueichow, Shansi and Shensi viceroys and governors are earnestly planning railway affairs but owing to the lack of funds they are not much facilitated. It is necessary to build railways for trade with the profit of which military lines should be built. In the northeast it is easy to raise funds from natives but in the northwest it is necessary to raise foreign loans. The board of communications is now collecting the plans of railways from all the provinces and compiling one complete map showing all the complicated lines in one. When the affairs of the board will be in proper working, order deputies with engineers will be appointed to complete this map with a record of the circumstances and then the order of building will be properly decided. When such plans and maps are completed they will be duly sent to provinces to enable them to report on the progress.—*China Mail.*

CHINESE REGISTERED MAIL

Provision is made by the Imperial Chinese Postal Department for the recovery of the value of registered mail lost in transmission, provided that it be insured. The regulation in this regard reads:

"The sender of a parcel may provide for full compensation, in case of its being lost, by insuring it. For domestic parcels of the value of $30 and more, and of domestic and international parcels containing gold and silver ware watches, jewellery, and precious stones, insurance is compulsory, but may not exceed $200 Mex. in the case of domestic parcels, and in the case of international parcels such sum as has been fixed by the country of destination. The fee for domestic insurance is 1 per cent. of the amount insured, with a minimum charge of 10 cents; for international parcels an additional fee is chargeable according to the route of transmission and the country of destination. Over-insurance is a bar to compensation."


PENANG HARBOUR
PLAN SHOWING SUGGESTED RECLAMATION IN FOUR SECTIONS AND PROPOSED LAYING OUT OF SITES FOR SHEDS AND BUILDING PLOTS WITH STREETS AND LANES

PENANG HARBOR IMPROVEMENT

The report of Messrs. Coode Son and Matthews, engineers, on the proposed improvements in Penang harbor, containing their recommendations, has been submitted and is now in the hands of the legislative council for their action. The report, which is a lengthy document, is reviewed by the Singapore *Free Press* as follows:

This report, which has been looked forward to with some interest, is a fairly lengthy document and dates back in its beginning as long ago as 1901. An interim report was however given in September 1906, which is attached to this report. This report dealt with the extension of Swettenham Pier and the widening of Weld Quay. The first named work which roughly provides for doubling the accommodation for steamers alongside this Pier, Government has already decided to carry out. The survey of the harbor found, taking the report roughly, that from the F. M. S. railway Pier to the Sungai Pinang the foreshore and sea bed is a mud flat of a most offensive description for a depth of fifteen feet. Under this were found sand or clay beds at various depths of sufficient stiffness to take foundations if retained in position. The depths of mud, sand and clay vary over the entire area. These mud flats are practically scourless and are evidently increasing, and the growing height of the silt, together with the lowness of the sewer and drain outfalls, renders these sewers and drains little more than traps which can only discharge under favorable conditions, and under any stress become the channels through which the town is flooded in certain parts. The unsanitary condition of the situation therefore apart from any engineering questions is obvious. The consensus of opinion locally was in favor of the Pier extension as conducing to such surety of berthing as would induce ship-owners to arrange to berth alongside instead of lying out in the harbor. If at a later stage further deep water accommodation is required it might be advisable to consider Sir John Coode's 1901 recommendation of a viaduct south east of Church Street ghaut running out a thousand feet or more and giving a headway of at least six feet.

THE 1901 SCHEME IMPOSSIBLE

In 1901 the Acting Colonial Engineer proposed a scheme of reclamation which roughly contained the following: Reclamation, from Pontoon Jetty to Sungai Pinang at varying width of 70 to 150 feet, with depth alongside of six feet at L.W.S.T., an island reclamation 800 feet south west of F.M.S. Pier to cover mud bank up to Sungai Pinang of total area of 115 acres, with canal between it and town face, and two bridge connections. The estimate for this work was just under three million dollars and it was expected that the land reclaimed would by sale more than repay cost.

This recommendation however does not meet with approval as the engineers consider the channel unless constantly dredged by four dredgers of the Crab type working continuously would silt and be a nuisance. But on top of this objection the engineers estimate the cost of this work would be £970,000 or three and a half times the original estimate made before full particulars were available. They therefore decline to recommend the scheme. Nor are they able to recommend the extension of Weld Quay so as to provide five feet depth in front of the quay and over the flats, as "we have no hesitation in saying that it will be entirely impracticable at any reasonable cost either to create such a depth or to maintain the same if formed."

WHAT IS RECOMMENDED.

What the engineers do recommend with the cost of the recommendations is as under, leaving out Swettenham Pier which they understand Government have in any case decided to proceed with.

	£ s. d.
(a) Widening Weld Quay, and formation of a small Reclamation between the widening last constructed and the Federated Malay States Railway Jetty, including the construction of a Quay wall 900 feet in length, having depth alongside of 9 feet at L. W. O. S. T. ...	£41,000 0 0
(b) Provision of a large intercepting Sewer from the southward end of the widened portion of Weld Quay to Prangin Ditch, including the connection of same with existing Sewer outfalls... ...	20,000 0 0
(c) The construction of a Quay wall 1,000 feet in length, in prolongation of the new length of Quay wall referred to in head (a), together with a Reclamation of 12 acres in extent between it and the face of Weld Quay	71,000 0 0
(d) Further prolongation of the Quay wall for a length of 1,000 feet, and Reclaiming an area of 24 acres, between it and the face of Weld Quay, constituting the third instalment of the Reclamation..	91,000 0 0
(e) Additional prolongation of the Quay wall for a length of 1,000 feet, and forming a further Reclamation of 34 acres in extent between it and the face of Weld Quay	124,000 0 0

The foregoing sums include the cost of such dredging as may be necessary to provide a depth of 9 feet at L. W. O. S. T. alongside the Quay throughout its entire length. It is anticipated that when so formed the training influence of the Quay wall on the ebb and flood currents, respectively, will be sufficient to ensure the maintenance of such depth with only occasional dredging.

	£ s. d.
(f) New ferro-concrete berthage at Church Street Ghaut Wharf, with approach thereto, also of ferro-concrete as previously described...	25,000 0 0

As a set-off against the cost of these works certain sums would be acquired from the sale of lands. We are, however, say the engineers, unable to estimate what this asset would be, although we have previously given such data as are in our possession bearing on the subject. We should, however, remark that there ought to be, in our opinion, a width of not less than from 120 feet to 150 feet set apart for a roadway extending throughout the whole length of Quay with suitable subsidiary roads and crossways, so that communications with godowns and other buildings which may be erected on the Reclamations may be readily established.

It is intended that the whole of the material for the Reclamation should consist of red earth, and not of mud derived from dredgings. We consider this necessary in order that buildings may be erected thereon within a reasonable period after completion, and also on sanitary grounds.

THE ALTERNATIVE.

Alternative schemes are given, the figures for the above, the first of the two schemes, differing from those of the second. It is the second that the engineers recommend and the works and cost of this scheme are as follows.

	£ s. d.
(a) First instalment of the Reclamation, having an area of 19 acres together with the construction of a Quay wall 2,250 feet in length, and the erection of four Jetties	192,000 0 0
(b) Laying of a large intercepting Sewer, as in the case of the alternative designs, extending southward to Prangin Ditch, including the connection of the existing outfalls to same	20,000 0 0
(c) Formation of an extended Reclamation having an area of 42 acres, and constructing five Jetties in connection therewith	228,000 0 0
(2) Erection of ferro-concrete Jetty at Church Street Ghaut Wharf, as in the other design...	25,000 0 0

In this design, provision has also been made for forming the Reclamation at the back of the wall, and between it and Weld Quay, entirely of red earth, for reasons we have already given, also for the carrying out of the necessary dredging.

THE BENEFITS

The advantages connected with either scheme are put down as the following.

(a) The provision of berthage for the largest tongkangs at all states of the tide.

(b) The formation of areas conveniently placed, where godowns can be erected, a much needed requirement; the front of the Reclamation in each case abutting on the new Quay.

(c) The promotion of the health of the Town by covering up the objectionable mud flats.

(d) The interception of the sewage discharged along the Harbor front, and its delivery at a point which will be comparatively unobjectionable and away from the business quarter.

(e) The adoption of the front line for the works, so as to utilise the tidal currents to the fullest extent in preventing mud accretions in front of the new Quays and alongside the Jetties.

The only disadvantage, of which we are aware, associated with the carrying out of either of the designs, would be the increased tendency to deposit silt on the mud flat in the re-entrant angle southward of the Reclamation for the time being. We have, however, already dealt with this point.

On the whole we favor the adoption of the design shown on Drawing No. 7 which contemplates, in association with the Quay and Reclamation, the provision of ferro-concrete Jetties.

HOTEL FOR HANKOW

The Palace Hotel Company of Hankow, Limited, has been organized with a capital of Taels 250,000 and has for its purpose the construction of a 50-room hotel at Hankow in the British concession. The plans have been prepared by Mr. Algar of Shanghai and provides in addition to the rooms for living purposes, a billiard, bar, dining, drawing and ball rooms. Mr. G. I. Shekury is the promoter. According to the *Celestial Empire* the prospectus states that in Hankow new concessions have been laid out and new steamship lines inaugurated, with the result that regular steamers plying between Shanghai and Hankow have increased more than fourfold. The "river-and-railway" route has quickly become recognized as the most comfortable and regular means at all times of the year of reaching Peking and conversely the amount of trade which leaves the North including Tientsin and even Manchuria for Shanghai by the railway has advanced by leaps and bounds. Hankow from its central position in China and its important trade routes to the North, to the East, to Szechwan, and when the Hankow-Canton railway is opened to the South, is bound to become from a commercial point of view a market the importance of which it is impossible to overestimate, and will soon entitle it to be called "the Chicago of the East."

PERSONAL

Mr. Charles S. Derham, manager for the firm of Messrs. Reiss & Mitchell of Manila, has accepted the position of general manager of the Insular Lumber Co. in the Philippines succeeding General Manager Johnston who has been identified with the operations of the company in the islands since its organization, and who returns to the United States to take charge of the foreign sales department of the company. Mr. Derham will take charge April 1st.

Mr. Bernard Landé, a well-known mining engineer and expert of New York City, arrived in the Philippines recently for the purpose of looking over the mineral prospects with a view to interesting capital. He has made his headquarters at Room 4, McCullough Building.

MANILA WATERWORKS AND SEWER CONSTRUCTION

The progress for the fiscal year 1907 in the important construction of a gravity water supply system and a sewer system for the city of Manila is made the subject of report by Major J. F. Case, chief engineer in charge of the work. He says:

At the beginning of the year work on all contracts of both sewer and waterworks systems had been commenced though but little progress had been made. The rainy season also interfered and it was not until the first of November, 1906, that rapid construction became possible.

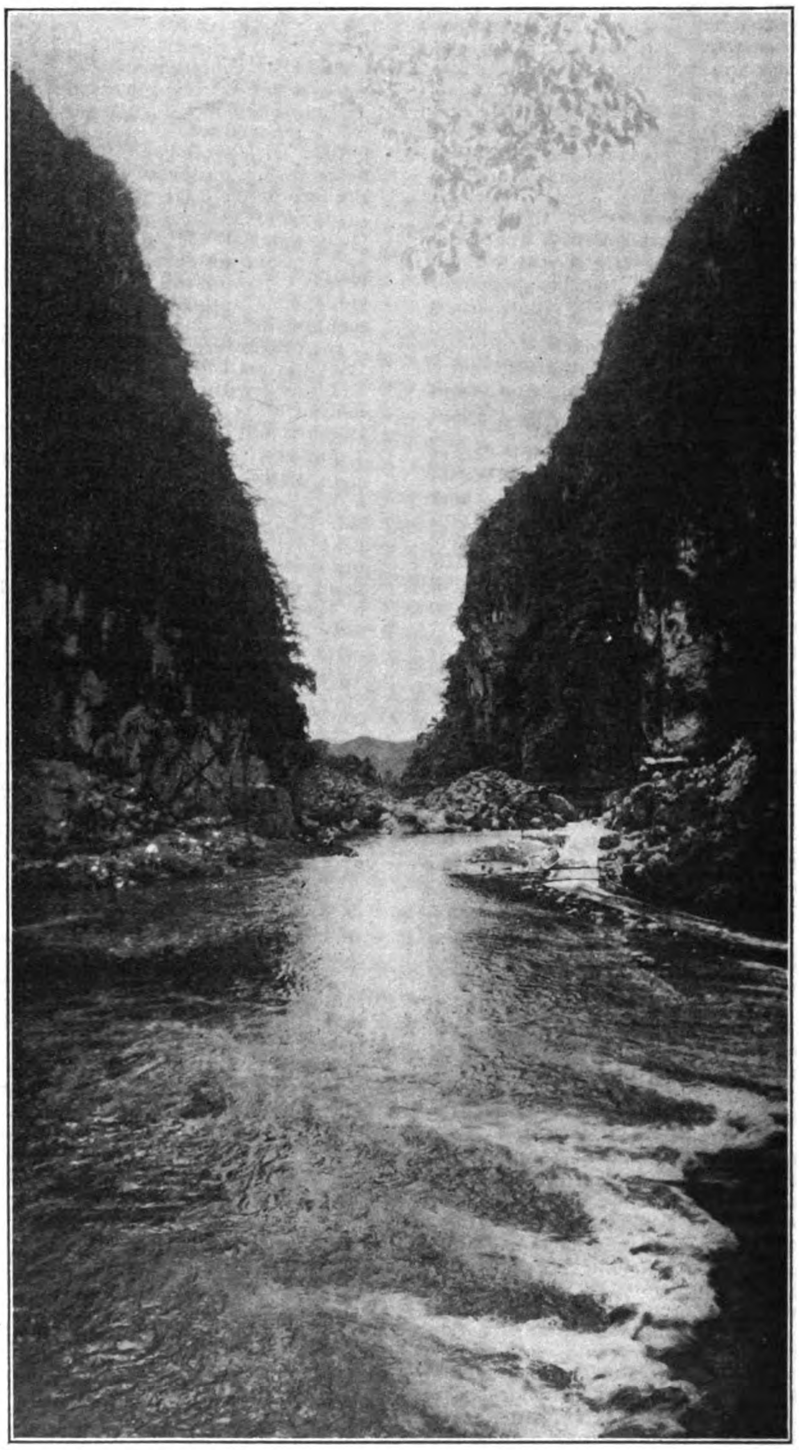
The Matson, Lord and Belser Company sublet their entire contract; the construction of the dam and head-works going to Mr. Salvador Farré and the new reservoir to the Manila Construction Co. At the dam, Mr. Farré continued the driving of the tunnel through the limestone rock of the gorge and also commenced the concentration of plant and machinery necessary for construction. At the beginning of the dry season, he installed a temporary cable way which enabled him to set up two derricks and engines with which he began the work of excavation about the middle of January. The tunnel was not completed until February 1st. During the remainder of the season the excavations for the foundations of the dam were commenced, but the work on this section has been disappointing. It was earnestly hoped and expected that the excavation would be completed and the concrete base for the dam built up to the level of the bed of the present stream, but the high water forced a suspension of operations before the excavation was entirely completed and no concrete has been placed. At the reservoir, the Manila Construction Company has made satisfactory progress and the close of the year finds the excavation more than half complete. The progress here has been such that the completion, within the contract time, is assured.

The Atlantic, Gulf and Pacific Co., contractors for the steel pipe line tunnel and masonry conduits, have made rapid progress. At the close of the year there remains only 3,900 feet of tunnel to drive and the monthly rate has varied from one thousand to two thousand five hundred feet throughout the year. The lining of the tunnel is well under way and the completion of this section within the contract time is almost certain. This company also established a modern pipe factory, thoroughly equipped with machinery for the manufacture of the steel pipe, and at the beginning of the dry season, began its fabrication and installation. On June 30th all steel pipe from the end of the conduit, nearly up to the town of Montalban, was in place and the pipe work in the gorge above Montalban was commenced as soon as the rainy season had forced a suspension of work on the dam. The new pipe line road constructed this year has given excellent satisfaction and all materials have been hauled over it. The repairs and maintenance of this road have cost but little and it is still in first class condition.

About one-half of the submerged pipe under the Mariquina River was placed, but the early rains forced a suspension of this work and it cannot again be taken up until the next dry season.

During the month of May a very heavy local rainstorm occurred at San Mateo and the water, getting into the trench alongside the empty steel pipe, lifted approximately a mile of pipe from its bed. Over six weeks were required to get this pipe back into position, though the pipe itself was uninjured. During the year, 26,859 lineal feet of steel pipe was laid.

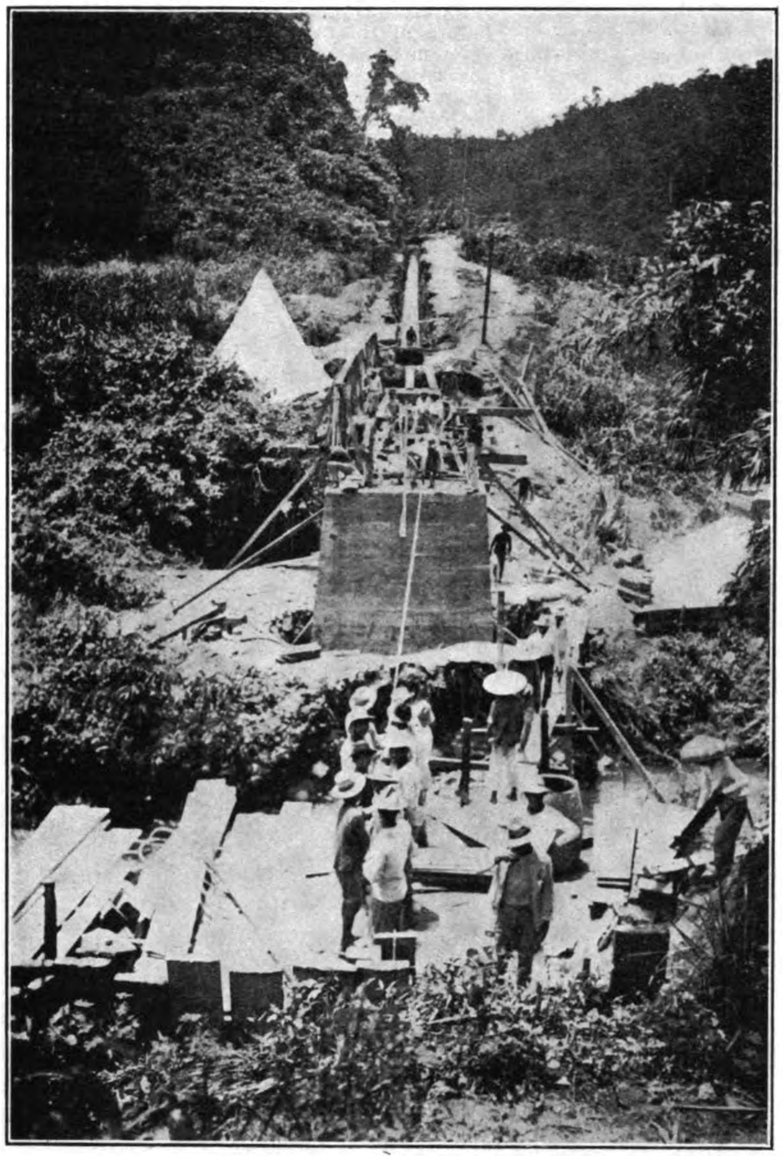
Sewers.—Gratifying progress has been made in sewer construction and the work is far ahead of contract requirements. Up to June 30th, more than 14 miles of sewers were entirely completed and this completed work included all the largest and deepest construction work. The main sewer on Calle Azcarraga is completed throughout its entire length of 9,280 feet. The egg-shaped sewer on Calle Lemery, 4,350 feet long, and on Calle Cervantes, 4,195 feet long, are completed. Calle Asuncion is practically complete from Azcarraga to the river. On the south side of the river the main sewer is completed from its junction with the submerged pipe to Calle Hospital and from the wall at the south end of Calle Cabildo to the Luneta police station. The main sewers are also under construction across Camp Wallace, on Calle Nueva, at two points on Calle Herrán and on Plaza Santa Ana. Aside from the main sewers, 49,222 lineal feet of pipe sewers were completely installed and about 2,000 feet of the 42-inch cast iron out-fall pipe. As accessories to the sewer construction, 120 manholes and 85 flush tanks were completed. By contract with Messrs. Findlay and Co. all sewer gates and sluice gates needed for the work were supplied during the year. A very excellent quality of vitrified pipe has been furnished, but some delay was occasioned by the failure of the Australian



DAM SITE, MANILA WATER SUPPLY

manufactures to supply the large sizes needed. In consequence a number of lines requiring large pipe were not installed, which otherwise would have been done.

Storm Water Drain.—The most important work of this division was the building of a large storm water drain in Calle Hospital and discharging into the Pasig River. The narrowness of the street rendered it necessary to construct this drain directly over the main sewer, and it was designed and installed in



ERECTING STEEL BRIDGE NEAR HEAD WORKS, MANILA WATER SUPPLY

TYPE OF CULVERT, MANILA WATERWORKS

TERMINAL LINING, TUNNEL, MANILA WATER SUPPLY

such a way that the arch of the main sewer constitutes the invert of the storm water drain.

Some other work has been done in this division by the superintendent of water supply and sewers but paid for by this department.

The large storm water drain in Calle Soler under construction at the close of last year was promptly and satisfactorily completed.

Distribution System.—The most important installation during the year was the extension of the mains along the Passage de Magallanes up Calle Aduana and Calle Hospital to the bank of the river near the Maestranza, at which point water plugs were installed to supply water to the water-boats and shipping. This work was also done by the superintendent of water supply and sewers and paid for by this department.

Inspection of Materials.—The Pittsburg Testing Laboratory of Pittsburg, Penn., has rendered prompt and satisfactory reports on materials furnished, and all materials received were of first class quality. Their work as inspectors is complete for the present.

Engineering.—The engineering staff of this department has been overworked during the entire year. It seems impossible to obtain and retain skilled assistants at the present rate of salaries. Through sickness and dissatisfaction this department lost five assistant engineers during the year, and while most of the vacancies can be filled, it should be borne in mind, that in a temporary department such as this, a man's chief value lies in the experience gained in the special work of this construction. A new man needs months to obtain this experience and the tendency is to leave the work as soon as experience is gained and to seek other employment which pays better and promises more rapid advancement. This attitude of the assistants is decidedly disconcerting to the chief of this department, since truth compels him to state that the chances for advancement or increase in salaries, are very remote. My thanks are due to the various assistants for their cheerful compliance with the necessities of the department, and I may state that almost without exception they have been required to work Sundays and holidays when weather conditions permitted field operations. Night work on plans and estimates is the rule rather than the exception, but all this extra work has been done cheerfully and without complaint. In spite of this, the work of the department is behind and only by extreme effort have the daily necessities of construction been met. Certain questions of importance have had to be left undecided. The plans of the distribution system throughout the city are still incomplete; the plans and specifications for the pumping stations for the sewer systems likewise, as also the specifications for the preparation of storage basin above the dam. The outlook for the completion of the work at such a time as not to cause delay in the operation of the system is discouraging. Attention has been called to the percentage of cost for engineering in this department in a former communication. It is the lowest engineering cost of any important work known in this department.

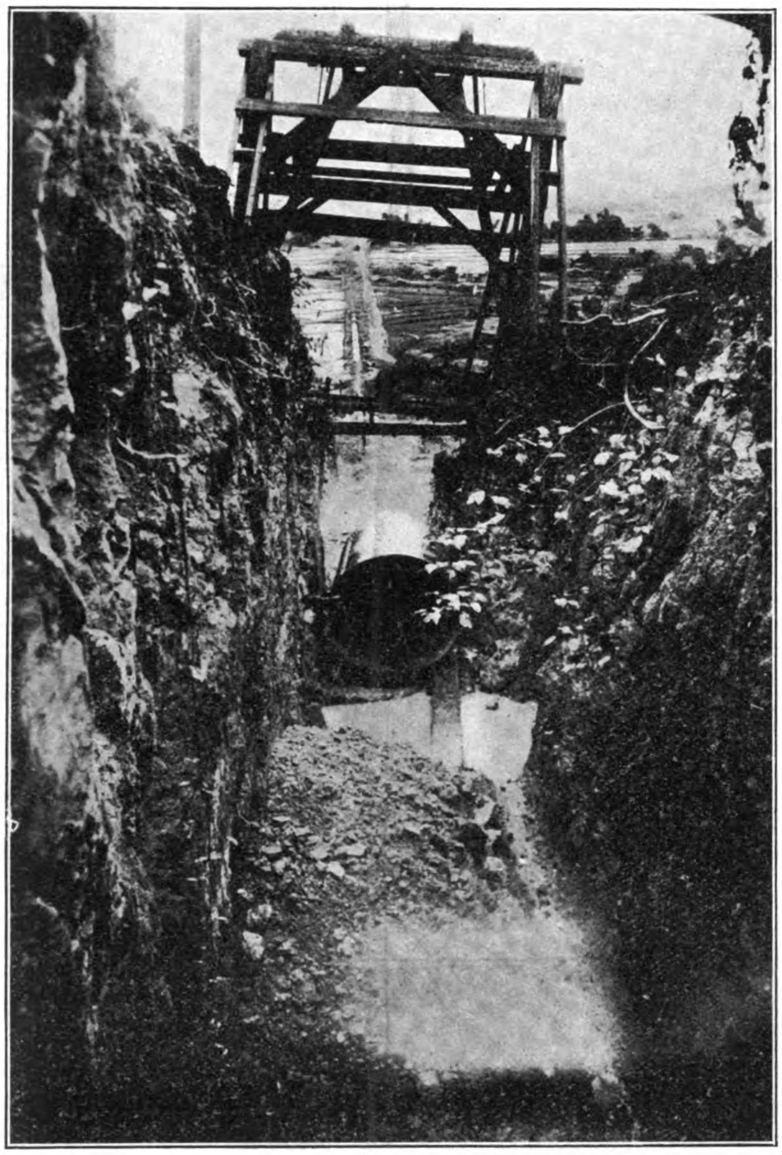
Recommendations.—In view of the temporary nature of this department, it is earnestly recommended that latitude be given in the payment of salaries necessary to secure and retain men of the grade desired and to satisfy the reasonable desires of those already in the service.

Appended thereto is a statement of expenditure in detail the totals being: Salaries and Wages, 91,079.82 pesos; Contingent Expenses, 2,023,029.00; Total, 2,114,109.00.

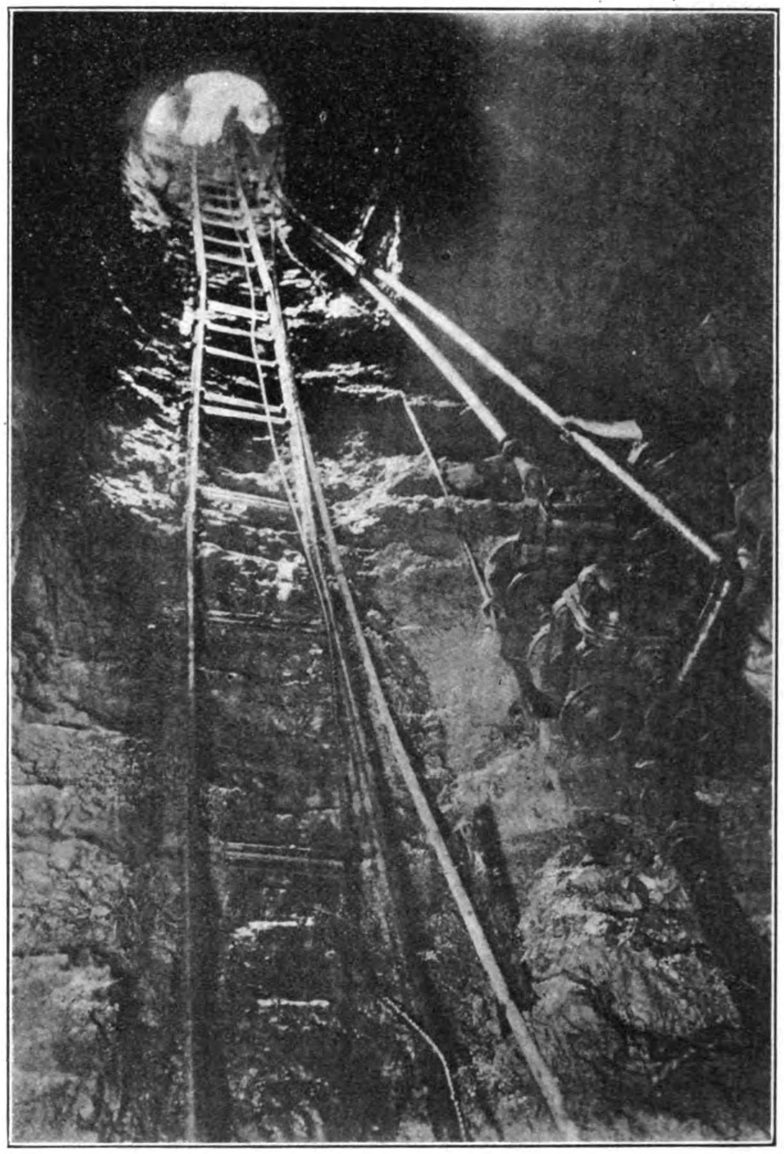
Some idea of the gravity water supply system may be gathered from the original specifications. The dam is situated about 16 miles from Manila and is built across the Mariquina River about three miles above the town of Montalban. The foundation is of solid rock and the construction of rubble concrete masonry. When the dam is completed it will be 400 feet long on the crest and the maximum height from the bed of the stream of approximately 75 feet. The central portion estimated at 160 feet in width will be the waste-weir section with its crest about 15 feet lower than the remainder. On the south side of the overflow is a gate-chamber serving an inlet well, sluiceway and supply pipe, the two latter extending through the dam. The tunnel through practically solid rock leading from the dam meant 17,500 cubic yards of excavation.

The steel pipe used will be 42 inches in diameter and 10 6 miles in length. The total weight exclusive of rivets and coating is estimated at 5,300,000 pounds.

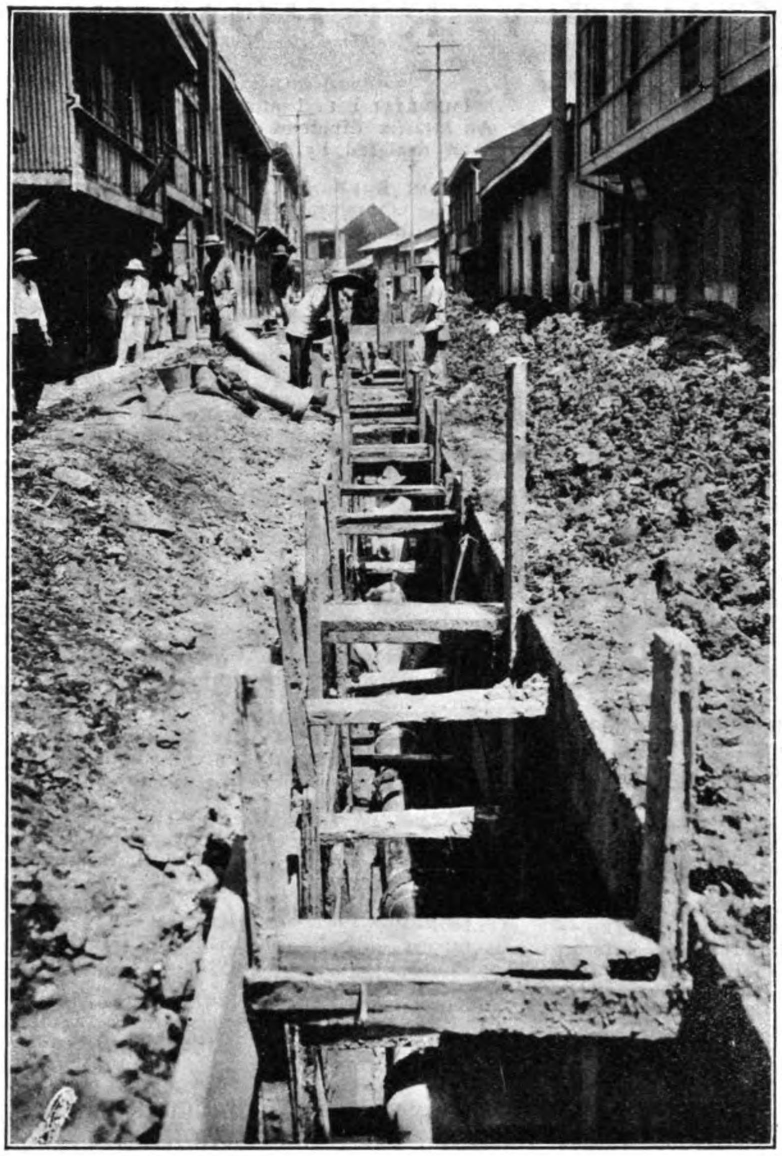
The total lineal estimate of main sewers is 39,140 feet or about 7.5 miles.



PIPE LINE FROM TERMINAL CHAMBER, MANILA WATERWORKS



SHAFT NO. 4 A, LOOKING UP, MANILA WATERWORKS



CONSTRUCTION ON CALLE LACOSTE

CALLE ARRANQUE, EXCAVATION

VIEW OF TERMINAL CHAMBER, MANILA WATERWORKS

FAR EASTERN COMPANY REPORTS

REDJANG LEBONG MINE.—The output of these mines for the year 1907 is estimated at 3,507,500 guilders, an increase of 794,000 guilders over 1906. The dividend declared in 1906 was 50 per cent and it is not improbable that this will be increased to 75 per cent for 1907.

HONGKONG, CANTON AND MACAO STEAMBOAT CO., LIMITED.—At the meeting of the company February 25, a dividend of $1.25 a share was declared for the half year ending December 31, 1907.

HONGKONG FIRE INSURANCE CO., LIMITED. The directors in their report for the year announce a profit of $283,486.65 and recommended a dividend of $27 a share with an addition to the reserve fund of $67,457.65.

HONGKONG ICE CO.—At the annual meeting of the company the directors recommended a final dividend of $15 a share making $19 in all for the year.

DAI ICHI GINKO.—The 23rd half-yearly report of this institution shows a profit for the term of Yen 914,227.92 out of which a dividend of yen 2.50 or at the rate of 10% on the old shares and a dividend of yen 1.50 at the rate of 10% on the new shares were directed paid. The balance of yen 447,710.00 was carried forward.

JAPAN LIFE INSURANCE CO.—The semi-annual meeting of this company was held on February 8th and a dividend of 12% per annum was declared for the term.

SIAM ELECTRICITY CO.—At an extraordinary meeting of the shareholders of this company the issue of first lien debentures was authorized to the amount of £100,000, the rate of interest not to exceed 6% per annum or to be less than 5% per annum.

ISHIKARI COLLIERY CO.—A dividend of 8% was declared by this company for the last half year.

DAI-SAN BANK.—This bank has declared a dividend of 12% for the last half year.

SEVENTY EIGHTH BANK.—This institution distributed a dividend of 8% for the half year at its last meeting.

THIRTY-SIXTH BANK.—Seven per cent was the dividend rate distributed by this bank for the last half year.

BUSO BANK.—The dividend distributed for the last half year was at the rate of 8%.

SHOHEI BANK.—This bank distributed an 8% dividend among its shareholders at the end of the last half-year term.

DAI-NIPPON WHALING CO.—A dividend of 10% was declared by the whaling company for the last half-year.

DAI-NIPPON BREWING CO.—At the last half-yearly meeting held last month, besides confirming the dividend of 15% recommended by the directors for the term, it was decided to increase the capital by 10,000,000 yen for the purpose of establishing a large brewery in Korea.

DAI NIPPON MARINE PRODUCTS CO.—A five per cent dividend was declared by this company for the last half year's operations.

EMPIRE HEMP MANUFACTURING CO.—A dividend of 12% was declared by this company as a result of its successful operation for the last half year term.

SHANGHAI-SUMATRA TOBACCO CO., LIMITED.—The directors of this company have recommended that a final dividend of 45% be declared. This makes 70% for the year. In addition Tls. 25,000 have been recommended placed in the special works fund.

BANK OF INDUSTRY.—At the 12th semi-annual meeting of the shareholders of this institution the reports showed a net profit for the term of yen 930,980.921 out of which a dividend of five per cent and a special dividend of two and one-half per cent were directed paid.

JAPAN RAILWAY CO.—This company has declared a dividend of 15.5% for the term.

GOMA COLLIERY.—At the third general meeting of this company a dividend of 7% was authorized and the sum of 73,600 yen carried forward to next account.

NETHERLANDS INDIA RAILWAY CO.—This company has paid an interim dividend of 20 florins on shares of 1,000 florins.

TWENTSCHE BANK VEREENIGING.—This institution has declared an interim dividend of 4%.

SEREMBAN TIN MINING CO.—The profits for the year amounted to £2,457 and dividends to the amount of £3,000 have been paid.

BANGKOK MANUFACTURING CO.—At the meeting of the shareholders of this company the amount set aside for a dividend of 6%, recommended by the directors, was carried into the reserve in order to further strengthen the confidence of the public.

PEKING-MUKDEN RAILWAY.—The net profit for the year was $4,700,000.

MAATSCHAPPIJ TOT MIJN-BOSCH-EN LANDBOUWEXPLOTATIE IN LANGKAT, LIMITED.—This company has declared a first interim dividend of 10 taels a share.

SIAMESE TRAMWAY COMPANY.—At the ordinary meeting of the company a dividend of 2% was declared for the half-year. After paying this amount Ticals 625.00 were placed to the statutory reserve and Ticals 23,050 00 to depreciation account.

SOUTH BRITISH FIRE AND MARINE INSURANCE COMPANY OF NEW ZEALAND.—This company has authorized a dividend for the year ending August 31, 1907, of 30% and carried £20,000 to the reserve. The balance of £19,108 was carried forward. The company's paid up capital is £100,000 and the reserve fund now contains £280,000 while the reinsurance reserve is £130,000. Henceforth the company will be known as the South British Insurance Co.

CHINA FIRE INSURANCE.—In their report for the year ending December 31, 1907, is shown a credit balance to profit and loss of $190,361.97 which they recommend distributed as follows:
Dividend of $6 and Bonus of $2 per share on 20,000 shares $160,000,00; to add to Extra Reserve Fund, which will then stand at $346,097.75, $25,648.10; Bonus to Office Staff $4,713.87, Total, $190,361.97.
The balance to the credit of working account is $372,432.78.

EAST ASIA FISHING CO.—This Osaka organization has decided to dissolve as a result of the very unsatisfactory business for the year developed at the last meeting when the reports showed a loss of yen 14,500.

HOKKAIDA COLLIERY AND STEAMSHIP CO.—The gross profit for the last half year was yen 2,149,571 and with 34,574 yen brought forward from last account made in all yen 2,184,145 for distribution. A dividend of 14% was declared; yen 108,000 added to the reserve; 53,780 yen paid in bonuses and the balance carried to working account.

RUSSO-CHINESE BANK.—The announcement is made that this bank has paid a dividend of 6%. An interim dividend of 4.5% was paid in January.

IMPERIAL LIFE INSURANCE CO. OF TOKYO.—An interim dividend of 12% per annum has been declared by this company.

KIRIN BREWING CO.—At a recent meeting of this company an interim dividend of 8% was authorized.

JAPAN SULPHUR CO.—This company which operates a sulphur mine in Iwashira province held its first meeting last month and declared a dividend of 5% for the half year. The plant has been in operation since last September.

ONE HUNDREDTH BANK.—The net profit of this institution for the half year was 345,597 yen.

JAPAN HAM CO.—The dividend declared by this company for the last half year was at the rate of 5%.

ORIENTAL PRINTING CO.—At the last half-yearly meeting this organization declared a dividend of 10%.

NAMBOKU OIL CO.—A dividend of 10% was declared by this company for the half year.

MEIJI COMMERCIAL BANK.—This institution has distributed a dividend of 8% for the last half year.

TOKYO SAVINGS BANK.—This institution had a most satisfactory half year and at the semi-annual meeting last month declared a dividend of 10%.

HONGKONG LAND RECLAMATION.—This company authorized a dividend of seven per cent, as usual, for the year.

KOWLOON LAND AND BUILDING CO., LIMITED.—A dividend of $1.75 a share was authorized last month for the year ending December 31st.

HONGKONG AND SHANGHAI BANKING CORPORATION

The eighty-fifth report of the Court of Directors to the ordinary half yearly general meeting of Shareholders held at the City Hall, Hongkong, on Saturday, February 15th, reads as follows:—

To the proprietors of the Hongkong and Shanghai Banking Corporation.

Gentlemen.—The Directors have now to submit to you a general statement of the affairs of the Bank, and Balance Sheet for the half-year ending 31st December, 1907.

The net profits for that period, including $1,797,167.54, balance brought forward from last account, after paying all charges, deducting interest paid and doubtful accounts, amount to $4,942,974 06.

The Directors recommend the transfer of $500,000 from the Profit and Loss Account to credit of the Silver Reserve Fund, which Fund with the addition from the premium on the new shares, will then stand at $13,500,000.

After making this transfer and deducting remuneration to Directors there remains for appropriation $4,427,974.06, out of which the Directors recommend the payment of a dividend of two pounds sterling per share on the old shares and a proportionate dividend, or one pound and ten shillings sterling per share on the new share, viz.: $220,000—which at 1/9¾, the rate of the day, will absorb $2,427,586.21.

The balance $2,000,387.85 to be carried to new profit and loss account.

CAPITAL.

The shares of the new issue have all been alloted and paid for in full: the capital now stands at $15,000,000 and from the premium on the new shares the sterling reserve fund has been increased by £500,000 and the Silver Reserve Fund by $1,250,000.

DIRECTORS

The Honourable Mr. H. Keswick has been elected Chairman for the year 1908, and Mr. E. Goetz, Deputy Chairman.

Mr A. Haupt, having resigned his seat on leaving the Colony, Mr. G. Friesland has been invited to fill the vacancy; the appointment requires confirmation at this meeting.

Mr. G. H. Medhurst, Mr C. R Lenzmann and Mr. H E. Tomkins retire in rotation, but being eligible for re-election, offer themselves accordingly.

AUDITORS

The accounts have been audited by Mr. W. Hutton Potts and Mr. A. G. Wood who offer themselves for re-election.

G. H. MEDHURST,
Chairman.

Hongkong, 4th February, 1908.

ABSTRACT OF ASSETS AND LIABILITIES
31st December, 1907.

LIABILITIES.

Paid-up capital		$15,000,000.00
Sterling reserve fund, £1,500,000 at ex. 2/-		15,000,000.00
Silver reserve fund		13,000,000.00
Marine insurance account		250,000.00
Notes in circulation:—		
Authorised issue against securities and coin deposited with the Crown agents for the colonies and their trustees..	$ c. 15,000,000.00	
Additional issues authorised by Hongkong Ordinances against coin lodged with the Hongkong Government....	711,147 00	
		15,711,147 00
Current accounts,— Silver	$79,411,028.55	
Gold, £4,909,913. 4s. 5d =	47 515,722.57	
		126,956,751.12
Fixed deposits,— Silver	$50,679,064.80	
Gold, £4,816,419. 9s 4d =	46 441,350 60	
		97,120,415.40
Bills payable (including drafts on London Bankers, call loans and short sight drawings on London office against bills receivable and bullion shipments)		11,475,783 32
Profit and loss account		4,942,974 06
Liability on bills of exchange re-discounted, £7,322,442 16s. 2d. of which £4,923,763. 9s. 9d. have since run off		
		$299,457,070.90

ASSETS

Cash		$40,508,887 37
Coin lodged with the Hongkong Government against authorised and or excess note circulation		10,000 000.00
Bullion in hand and in transit...		4,131,765.92
Indian Government Rupee paper		2,015,391.84
Consols, Colonial and other securities		6,403,912.25
Sterling reserve fund investment, viz:—		
£1,208,000 2½ per cent Consols at 82.......	£990,560	
(of which £250,000 lodged with the Bank of England as a Special London Reserve.)		
£255,000 2¾ per cent. National War Loan, at 90	229,500	
£325,000 other Sterling Securities written down to	279,940	
	£1,500,000 at ex. 2/-=15,000,000.00	
Bills discounted, loans and credits		101,598,165 78
Bills receivable		118,006,643 45
Bank premises		1,792,304 29
		$299 457,070 90

GENERAL PROFIT AND LOSS ACCOUNT.

Dr. December 31st 1907.

To amounts written off:— Remuneration to Directors		$15,000.00
To dividend account:— £2 per share on 80 000 shares .=£160,000		
Proportionate dividend, or £1.10/-, per share on 40,000 shares new issue......=£60,000		
£220,000 at 1/9¾=		2,427,586.21
To transfer to silver reserve fund.		500,000.00
To Balance forward to next half-year		2,000,387.85
		$4,942,974 06

Cr.

By balance of undivided profits, 30th June, 1907.	$1,797,167.54	
By amount of net profits for the six months ending 31st Dec. 1907, after making provision for bad and doubtful debts, deducting all expenses and interest paid and due	3,145 806.52	
		$4,942,974 06
		$4 942 974 06

STERLING RESERVE FUND.

To balance £1,500,000 at ex. 2/.	$15 000,000 00
	$15,000 000 00
By balance 30th June 1907, £1 000,000 at ex 2/-	$10,000,000.00
By part of premium on new shares £500,000 at ex. 2/-	5,000,000.00
(invested sterling securities.)	
	$15,000,000.00

SILVER RESERVE FUND.

To balance	$13,500 000.00
	$13,500,000 00
By balance 30th June, 1907	$11,750,000.00
By balance of premium on new shares	1,250,000 00
By transfer from profit and loss account	500,000 00
	$13,500,000 00

JANUARY TIN OUTPUT

	Piculs
Pusing Lama Tin Mines	442.
Belat Tin Mining Co., Ltd.	523.50
Kuantan Tin Mining Co., Ltd.	330.75
Sipiau Tin Mining Co., Ltd.	98 72
Tronoh Mines, Ltd	2,632 62
Lahat Mines, Ltd	300.
Mendrus Mines	206.
Royal Johore Tin Mining Co., Ltd	140.
Chenderiang Mines	1,262.
Sungei Besi Mine	999.
Goeng Tin Mining Co., Ltd.	615.
New Gopeng Ltd	220.
Kinta Tin Mines Co., Ltd.	430.
Kledang Mines	420.
Redhills Tin Mining Co., Ltd.	400.

ANNUAL REPORT OF THE HONGKONG AND WHAMPOA DOCK COMPANY, LIMITED

The annual meeting of the shareholders of the Hongkong and Whampoa Dock Company, Limited, was held in the board office February 24th at noon. There were present Messrs. H. G. White (Chairman), A. Fuchs, Hon. Mr. Henry Keswick, Messrs. W. Helms, G. Friesland, Sir Paul Chater, C.M.G., D. W. Craddock, G. H. Medhurst, J. S. Van Buren and S. Silverstone (Directors). Messrs. A. G. Wood, A. V. Apcar, L. Berindcague, J. P. Braga, D. W. Craddock, A. Denison, E. Georg, F. E. Ellis. W. C. Jack, S. H. Michael, G. H. Medhurst, E. J. Moses, W. Parlane, A. Rodger, H. P, Smith, W. H. Wickham, Chau Siu Ki, Choa Leep Chee, R. Mitchell, acting chief manager, and T. I. Rose, secretary.

The report, already published, was placed before members.

The Chairman said: The report and statement of accounts having been in your hands for some days, I propose, with your permission, to take them as read. The net profits for the half year ending 31st Dec., 1907, amount to $160,611.95, as compared with $401,396.82 for the first six months of the year, and $369,596.36 for the corresponding period of 1906. Including the $491,580.56, balance brought forward from last account, and deducting directors' and auditors' fees, we have available for appropriation the sum of $641,442.51, out of which sum your directors propose, subject to your approval, to pay a dividend for the half year of 8 per cent., or $4 per share, absorbing $200,000, and to carry forward the balance, $441,442.51, to a new account. We trust this distribution of profits will meet with your approval. Some shareholders may question the advisability of paying away more than has been earned during the past half year, but I would point out that, taking the year as a whole, we have earned more than the dividends recommended. While regretting the poor results of the working for the past six months, it must be remembered that during the first three months of the period under review there was very little doing in the way of docking and repairs, and but for the new work in the shipbuilding department, the shops would have been practically closed. As mentioned in the report, most of the profit on the new work uncompleted will come into the current six months. The profit from this class of work is small, but helps to cover establishment charges and keeps our men together during slack periods. The work of lengthening the No. 1 dock is progressing as well as can be expected, without interfering with the utility of the dock, and seeing there is still $92,113.92 at the credit of the extension account, your directors deemed it inexpedient to make further provision for this account just now, the amount in hand being more than sufficient to carry on for the current six months. The caisson of the No. 2 dock has been thoroughly overhauled and repaired at an expense of $12,498.30, which amount you will observe appears at the debit of revenue account, and it was unfortunate that we had to provide for such a heavy extraordinary outlay during a lean half year, but the work of repairing could not be further delayed. During the present half year the caisson of No. 3 dock will require a thorough overhaul and repair, but being small in itself the cost will not be so heavy as in the other caissons. Stocks of material on hand are lower by $76,000 than six months ago, and I take this opportunity of informing you that it will be our endeavour to effect such further reduction as is consistent with the satisfactory working of our business. The taking of stocks has been thoroughly carried out, and we have the assurance of the stocktakers that the materials are worth the money they stand at in our books. In the statement of accounts, your directors considered

it advisable to make a slight change from our usual practice in giving detailed cost of improvements and separate items in our earnings; these are now merged in two amounts. If any shareholder wishes for fuller information regarding same, details can be obtained on application to the secretary. Further than this, the statement of accounts does not appear to call for any special comment. Amounts under the headings of sundry creditors and sundry debtors are rather larger than shown in the last statement, but these will be reduced as new work in hand is delivered and paid for. As you are aware, the new tug and salvage steamer *David Gillies* has been successfully launched; she is now being fitted out, and will be finished, so far as towing is concerned, in about six weeks. The salvage plant, though ordered in the early stages of the work, is not yet to hand. The alterations consequent on the extension of the boiler shop are well advanced, the most satisfactory feature in same being the erection of a new chimney and the installation of induced draught. This system has only been running two weeks, but gives indication of decided efficiency, and will certainly result in further economies of working expenses. The tonnage of British and foreign men-of-war docked during the past half year shows a steady reduction compared with former years, and as to merchant shipping, while there have been fewer steamers docked, the aggregate tonnage remains almost the same as the corresponding six months of last year, showing that the average tonnage has gone up from 2,416 tons to 2,620 tons. The sub-committee of directors have submitted several matters resulting from their investigations which have already been dealt with by the full board, and the shareholders may rest assured that every effort will continue to be made in the direction of effecting economies. Gentlemen, before closing my remarks, I may say that with the amount of work on hand, our prospects are favourable for the current half year, and before moving the adoption of the report and statement of accounts, I shall be pleased to answer to the best of my ability any questions that you may wish to ask. (Applause.)

There were no questions, and the chairman moved the adoption of the report and accounts.

Mr. Wickham said that with the depression existing during the period under review he thought the shareholders might be congratulated that the accounts were as good. In justifying the payment of a 4 per cent. dividend, the chairman alluded to the fact that taking the year as a whole the dividend had been fully earned. It was one of the slight inconveniences of half yearly accounts that the period under review was often too short to show a correct view of the average earnings. Many of the most successful enterprises if a sufficiently short period was taken in their history might be made to show unsatisfactory accounts for that period. It was very satisfactory to hear that the work in hand makes the opening of this year appear to be a favorable one. They hoped the seed sown in the last lean half year would bear fruit this year. It was also satisfactory to know that work at the No. 1 dock was progressing favorably and that the funds already allotted for that work would be sufficient to carry on for the present half year. The Chairman had not alluded to a matter interesting to every shareholder—that was the prospect of competition. Personally he felt very optimistic about the resources and abilities of the Dock Company to meet competition. Its advantages were manifold and only had to be stated to be appreciated. The company had the guidance of a board of directors which included representatives of most of the leading shipping firms and companies in the Colony. They had a capital relatively low compared with the resources of the dock, its workshops, and engineering plant. They had also a zealous and expert staff who were not only conversant with the conditions and requirements of local shipping but who were personally well in touch with the requirements of the business. These were some of the advantages they possessed. There was another one which he ventured to state never appeared on the balance sheet—that was the matter of sentiment. Everyone who had the interest of the Colony at heart looked with pride on the dock company. Every Hongkongite, whether he was a shareholder or not, viewed its past achievements with pride and looked forward with good will and hope to its increased prosperity in the future. With the co-operation of their directors, staff and shareholders, the goodwill of their customers, and the support of public opinion, they might successfully look forward to meet any competition that might arise. He seconded the adoption of the report and accounts. (Applause.)

The motion was carried.

Mr. Jack proposed the confirmation of the appointment of the Hon. Mr. H. Keswick, Mr. A. Fuchs, Mr. W. Helms and Mr. G. Friesland to the board of directors. Mr. Skinner seconded and the motion was agreed to.

Messrs. G. H. Medhurst and S. Silverstone were re-elected to the Board on the motion of Mr. Berindoague, seconded by Mr. Parlane.

Mr. Apcar proposed the re-election of the retiring auditors, Messrs. H. U. Jeffries and H. Percy Smith. Mr. Georg seconded, and the motion was carried.

ANNUAL REPORT.

Following is the report of the Board of Directors of the Hongkong and Whampoa Dock Company, Limited:

To the shareholders of the Hongkong and Whampoa Dock Company, Limited.

Gentlemen:—The Directors have now to submit to you their Report, with a Statement of Accounts, for the half-year ended 31st December, 1907.

The net profit for the six months after paying interest due and all charges, amounts to		$160,611.95
to which has to be added the balance brought forward from last account		491,580.56
		$652,192.51
and from this have to be deducted—		
Directors' fees	$10,000.00	
Auditors' fees	750.00	
		10,750.00
leaving available for appropriation		$641,442.51

The Directors recommend that a Dividend for the half-year of 8% or $200,000.00 be paid to Shareholders, and the balance $441,442.51 be carried to the new account.

During the past six months we have delivered several of the new vessels mentioned in the last report, namely, a Steel Tow Boat for Manila, Composite Tow Boat for Singapore, Fireflcat and Wood Tow Boat for Hongkong, while we have disposed of a launch under construction for ourselves.

The other vessels were well advanced at the close of the year, and the profits on same will come into the present half-year.

The prospects of new work are favorable as we have several inquiries likely to result in business.

The Dredger *Canton River* was employed for several months during the past half-year and is now under charter to the Hongkong and Kowloon Wharf and Godown Company Limited.

The extension to the Boiler Shop at Kowloon Dock and consequent alterations are progressing satisfactorily.

DIRECTORS.

The Hon. Mr. W. J. Gresson, Mr. N. A. Siebs, Mr. E. Goetz and Mr. A. Haupt having resigned their seats on leaving the Colony, the Hon. Mr. Henry Keswick, Mr. A. Fuchs, Mr. W. Helms and Mr. G. Friesland have been invited to fill the vacancies. These appointments require confirmation at this meeting.

In accordance with Clauses 78 and 85 of the Articles of Association, Mr. G. H. Medhurst and Mr. S. Silverstone retire by rotation, but being eligible, offer themselves for re-election.

The Honorable Mr. Henry Keswick has been elected Chairman for the year 1908.

AUDITORS.

The accounts have been audited by Mr. H. U. Jeffries and Mr. H. Percy Smith, F.C.A. The Directors recommended Messrs. Jeffries and Smith for re-election.

H. P. WHITE,
Chairman.

Hongkong, 12th February, 1908.

BALANCE SHEET.

31st Dec., 1907.

LIABILITIES.

December 31st, 1907.

To capital 50,000 shares of $50 each, fully paid up		$2,500,000.00
To Admiralty Loan £20,000. 0. 0		
Less Repayments 19,146.14. 0		
£ 853. 5. 2 @ 1-9⅞		9,361.46
To No. 1 Dock Extension Account		150,000.00
To Marine Insurance Account		68,699.43
To Sundry Creditors		2,191,690.46
To Balance of Profit brought forward from last Account	491,580.56	
To profit for the half-year ending December 31st 1907	160,611.95	
		652,192.51
		$5,571,943.86

ASSETS.

Dec. 31st, 1907.

Aberdeen.		
By Value of Aberdeen Docks, as per last Statement		$100,000.00
Kowloon.		
By Value of Kowloon Docks as per last Statement	$2,461,523.00	
By Amount paid on account of Boiler Shop Extension and additions to Plant	46,932.00	
		2,508,455.00
No. 1 Dock Extension Account.		
By Amount paid as per last Statement	24,850.31	
By Account expended during the six months 1st July to 31st December, 1907	33,035.77	
		57,886.08
Cosmopolitan.		
By Value of Cosmopolitan Dock, as per last Statement		303,066.92
By Value of Tug, Dredgers, Launches, Lighters and S.S. *Sorsogon* as per last Statement		366,284.89
By Sundry Debtors		522,321.94
By Value of Material expended on Work in progress	$228,162.85	
By Value of Material on hand	1,485,766.18	
		1,713,929.03
		$5,571,943.86

REVENUE ACCOUNT.

Dec. 31st, 1907.

To Amount paid during six months reconstructing Caisson, No. 2 Dock	$ 10,498.30
To Interest	56,480.88

To Crown Rent	4,073.05
To Fire Insurance	3,268.70
To Office Expenses, Salaries, Stationery & Rent of Head Office	28,739.81
To Telegrams	1,174.76
To Legal Expenses	542.80
To Marine Insurance Account	6,200.00
To Profit	160,611.95
	$273,590.25

July 1st to Dec. 31st, 1907.

By Net Earnings	$273,590.25
	$273,590.25

Hongkong, 12th February, 1908.

R. MITCHELL,
Acting Chief Manager

THOS. I. ROSE,
Secretary.

We have examined the Books and Vouchers of the Company and hereby certify that the above Statements are in accordance therewith.

H. U. JEFFRIES,
H. PERCY SMITH, F.C.A.,
Auditors.

PHILIPPINE COMPANY, LIMITED.—Report of the Local Agents presented at the fifth ordinary general meeting of shareholders held at the Office of the Company No. 100 Calle Anloague, at 3:30 p. m. on Wednesday, the 4th March, 1908.

GENTLEMEN:—

Your Directors have pleasure in presenting their Report and Statement of Account for 1907 and congratulate the shareholders on their first profitable year.

The output and sale of Cigars has increased by some 50%, especially in the higher priced shapes and turning out the quality of Cigar that the Factory is making at present we see prospects of further increased sale.

The Cigarette business is not quite so satisfactory, although a slightly increased demand is noticeable, but at the present time a great increase in this line would mean a great increase in outstandings and considering the state of the country and the scarcity of money at the moment this is not to be desired.

The Giralda Building is in excellent condition. During the last year a new roof has been put on, the cost of which, some ₱3000, has been borne by working account. It has been continued let at a fairly profitable rent.

The Factory Buildings at Gastambide are also in good shape and we have added a new drying room, which was greatly needed.

Your General Managers at Hongkong have arranged to increase the Capital of the Company by the issue of additional shares and have guaranteed that these will all be taken up. This will enable you to write off the balance at Debit of Profit and Loss Account and also to repay remainder of Hongkong Loan and will leave the Company with no interest charges to pay and with practically a clean sheet.

The arrangement being most satisfactory for your interests, the Directors have called an Extraordinary General Meeting for Wednesday 26th February in order to obtain your confirmation and to arrange that it be put through as from the first of the year.

Your Directors are of opinion that prospects are better than any previous year.

In accordance with Artic e 51 of the Articles of Association the Directors, Messrs. Mackay, White and Humphreys, retire from office, but offer themselves for re-election.

The Auditor Mr. Fleming also offers himself for re-election.

Manila, 19th February, 1908.

The Philippine Company, Ltd.
Holliday, Wise & Co., Local Agents.

BALANCE SHEET FOR THE YEAR ENDING 31st DECEMBER 1907

LIABILITIES

Capital		₱ 608,108.11
Loan at 6%	$ 90,000.00	
less: Exchange fluctuation (Ex. 90)	" 9,000.00	" 81,000.00
Sundry Creditors		" 3,553.21
		₱ 692,661.32

ASSETS

Land and Buildings	₱ 194,719.20
Goodwill and Trademarks	" 229 357 79
Plant and Stocks	" 117,735.07
Furniture	" 17,296.31
Machinery	" 40,470.21
Cash in hand and at Bankers	" 2,883 93
Fire Insurance in advance	" 1,417 04
Sundry Debtors	" 69,305 59
Balance	" 19,476.18
	₱ 692,661 32

PROFIT AND LOSS ACCOUNT

LOSSES

Balance carried foward at 31st December 1906	₱ 47,224.63
Fire Insurance	" 2,743 43
Interest	" 6,120.61
Management, salaries and charges in Manila	" 17 493 12
Bonus and Commissions	" 1,201.44
Licenses and Taxes	" 1,484.25
Advertising	" 1,535 54
Losses on Consignments	" 1,463.31
	₱ 79,266 33

PROFITS

Manufacturing and Working Profits	₱ 46,984.11
Commissions	" 2,033 98
Profits on Consignments	" 409 11
Bad debts recovered	" 1,363 64
Exchange	" 8 999 31
Balance	" 19,476 18
	₱ 79,266 33

I have compared the above statement with the Books and Vouchers of the Company and have found same to be in accordance therewith.

Manila, 19th February, 1908.

D. M. FLEMING, *Auditor.*

HOLLIDAY, WISE & CO.,
Local Agents.

BENGUET CONSOLIDATED MINING CO.—The first fifteen months operations of this company show output in gold bullion of ₱56,823 36. The ore milled averaged about $14 a ton in Assay and the cost of mining and milling averaged about $2 gold a ton. The plant used was a three stamp mill and Cyanide plant and for about four months the operations were only experimental. The cost of operation for the fifteen months amounted to ₱46,981. The total value of stock issued is ₱194,886.84. The purchase price of the property was ₱134 283 96; value of plant including mill and cyanide ₱80,676.49. The duplicate of the present mill ordered last fall is now almost installed and the steel flume to provide water power sufficient to drive fifteen stamps is almost finished. The shareholders decided that all the surplus of the mine should be expended in developing the mine and increasing the capacity of the plant and the result is that instead of disposing of any surplus in dividends, the capacity of the plant will be doubled about the first of April. The average monthly value of gold extracted during the year ending Dec. 31 was ₱4,200 and the expenses ₱3,000. With the new plant it is estimated that the output a month will average 8400 pesos a month and the expenses will not exceed ₱4,000. It is not improbable that the surplus in working account will be expended by the end of the present year in increasing the plant to fifteen stamps. In the estimates of output for the year, no account is taken of the improvements to the cyanide plant, which provide facilities for extracting an additional 20% of the metal. Manager Eye in his report for the term announced that there were in all $256,000 gold worth of ore averaging $520 gold a ton blocked out and that the operations each month included the additional blocking out of $20 ore to the value of $30,000 gold. In this connection it must be taken into account that only the ore taken from the tunnels as work of blocking out advanced has been milled.

SHANGHAI SURPLUS 1907 STOCKS

A compilation of the stocks of goods in the hands of importers in Shanghai at the close of the year 1907 makes a valuable and interesting circular issued by the Shanghai Chamber of Commerce the last of January and of which the following is a short review by the *Chinese Critic:*

Under the heading of "Goods unsold and sold but uncleared" are given the quantities of various materials of which the most important totals are—grey shirtings 1,317.569 pieces; white shirtings 1,112,914 pieces; white Irishes 215.565; T Cloths 146.269; drills 710.334; Jeans 180 802; sheetings 6,712,291; printed cottons 705.755; fancy woven cottons 91,125; cotton Italians, and lastings 2,017 337; kerosene oil 4.673.825 Under the heading "sold and paid for and stored by Chinese" are the following figures—grey shirtings 133 838; white shirtings 90,828; white Irishes 162.964; drills 25,648; Jeans 38,150; sheetings 181 285; printed cotton 18,232; fancy woven cottons 1,300; 37,638; kerosene oil 467.200. Among the details to be noted are that of the oil that from Borneo exceeds that from America by a large amount, the figures being America, 1,033 505; Borneo 2,268,635; and Sumatra and Logkat 1.371 405. Of the drills the British figures totalled 66,220 pieces; while the American were 563,185.

SOUTH MANCHURIAN RAILWAY

The receipts of this line for the month of January amounted to Yen 753,932 and of the Mukden-Antanshien line, Yen 28 555 Of the order placed in America for 200 locomotives, 80 passenger coaches and 2,200 freight cars, 45 locomotives and 800 coaches have arrived and the balance is expected delivered by next August.

JOHORE RAILWAY EXTENSION

The many natural difficulties to overcome in the construction of this line may make it impossible to complete it this year as anticipated. The *Perak Pioneer* states that the yielding nature of the swampy country through which the line is being constructed makes it necessary for much filling as the sinking of the earthwork beyond estimates is continual, making progress very slow.

The Sungei Ujong Extension is to be transferred to the Federated Malay States Railways in July next.

U. S. CONSULATES IN THE ORIENT

The secretary of state has sent a strong recommendation to Congress that provision be made for new consulate buildings with the necessary appropriations at certain points as follows:

Shanghai, $500 000; Amoy, $8 350; Canton, $115 000; Hongkong, $155,000; Chefoo, $40,000; Chungking, $11.500; Foochow. $8 000; Hankow, $60.000; Nanking, $44.000; Tientsin, $65,000; Kobe, $120,000; Nagasaki, $55,000; Seoul, $10,000; Tamsui, $27,300; Yokohama, $104,493.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPH LINES, ETC.

YINGKOW ELECTRIC LIGHT SYSTEM.—The installation of the plant by the Yingkow Water Works and Electric Light Co. is practically completed.

KONGMOON ELECTRIC LIGHT AND WATERWORKS.—A company with a capital of $600,000 has been formed to supply Kongmoon with an electric light system and also a system of water supply.

WALLSEND TRAMWAY.—The construction of an extension of the present system from Wallsend to West Wallsend, New South Wales, a distance of eight miles, has been authorized by the parliament and the cost is estimated at £37,055.

AUSTRALIAN GOVERNMENT CABLES.—Failing to come to a reasonable agreement with the present cable companies in regard to the purchase of their lines, the Australian government has advertised for tenders for the installation of two cables connecting Victoria and New Zealand.

TIENTSIN TRAMWAYS.—The operations of this company have been very successful and an effort is being made to secure permission to double its lines in different sections in order to handle the traffic. According to the *Peking and Tientsin Times* the 13 cars in operation earn on an average, $1000 a day.

JAVA-COCOS CABLE.—The laying of this cable which will connect Batavia with the southern point of the Cocos Islands is being laid. The distance is 600 miles and the depth of the ocean between 14,000 and 18,000 feet. The course of the cable will take the direction of Prince's Island in Sunda Straits.

MANILA ELECTRIC LIGHT RATES.—The appointment of a commission has been authorized by the Philippine Assembly to inquire into the present rates for electric light and power charged by the Manila Electric R. R. & L. Co. in the city of Manila and to make such recommendations as it may deem advisable.

BURMA MOTOR TRANSPORT CO.—This is the title of a new company being organized at Moulmein with a capital of Rupees 1,50,000 for the purpose of taking over the Moulmein and Muden Motor and Transport Co. and to extend its service to other districts in Burma. This company will carry passengers and freight.

PARIS-NEW YORK MOTOR RACE.—Eight competitors have been enrolled for the race around the world in motors: four are French, two American; one German and one Portuguese. The route is from Paris via Boulogne, Liverpool, New York, Alaska, the frozen Behring Straits, Siberia and through Europe back to Paris.

TELEGRAPHS IN CHINA.—At the end of 1906 the Imperial Chinese Telegraph administration had a system length of 22,419 miles, with 34,473 miles of wires, and 946 nautical miles of submarine cables. Offices numbered 379, of which 62 were open for day and night service, and 317 for day service only. The number of instruments in actual use was 768. The staff of the head office in Shanghai numbered 67, and the general staff 3,175, while inspectors, linesmen, &c., totalled 2,400. In addition there are many provincial lines, usually constructed by the administration, worked and managed independently by the provincial authorities. The telegraph companies having connections with China are the Great Northern, Eastern Extension, German, Dutch, and Commercial Pacific, while a French cable connects Tourane with Amoy, a German cable Shanghai with Kiaochow and Chefoo, and a third cable, partly Chinese, Chefoo with Port Arthur. The last was cut during the war between Japan and Russia, and is not yet repaired. China has also frontier connections with Burma, Indo-China, and Russian Siberia.

RAILWAYS AND RAILWAY SUPPLIES

OFU-KARUYA LINE DOUBLED.—This work is now complete and traffic opened under the new conditions.

YUNNAN-LOKAI RAILWAY AGITATION.—The natives of Yunnan are agitating the purchase of this line from the French syndicate when completed.

HARBIN-TSITSIHAR-AIGUN RAILWAY.—It is announced that China has concluded arrangements for the redemption of this line from the Russians.

SANYO RAILWAY PURCHASE.—The purchase price of this line which will soon be taken over by the Japanese government has been fixed at 80,416,841 yen.

MONO-RAIL IN INDIA.—The Punjab government has authorized the extension of the Mono-railway now operating between Sirhind and Bassein to Marind.

HONGKONG CANTON RAILWAY.—The sum of $4,250,000 has been appropriated by the Hongkong Legislative Council to be used in construction work on the line for the year 1908.

JAPANESE RAILWAY LOAN.—An effort is being made to float a loan of 1,989,000 yen to construct a branch of the South Manchurian railway connecting Mukden and Antanshien.

KWANGSI RAILWAY PROJECTS.—The expenditure of one million taels has been authorized by Peking to prospect and survey the route of the railway line to be built by the Kwangsi Railway Co.

HONAN RAILWAYS.—The surveys of the proposed lines in this province are now under way and arrangements are said to have been concluded for the financiering of the enterprise with Chinese capital.

TAIYUAN-PINGTING CHOW RAILWAY.—A French loan is being negotiated for the sum of 1,700,000 francs to finance the project which has for its object the transportation of coal between these two points.

CANTON-HANKOW RAILWAY.—Construction work was renewed immediately after the Chinese New Year, and during the holidays the section between Fatshan and Canton was continually in operation with exceptional returns.

AMOY RAILWAY.—The first engine for this line arrived from Germany last month. No rails have yet been laid but the work of construction is now under way. The engine will be used on construction, which accounts for its early arrival.

JAPANESE LOCOMOTIVE WORKS.—The government has decided to establish a large factory for the construction of railway rolling stock at Kobe in view of the extensive projects in the empire so as to avoid expending money abroad for this equipment.

KOREAN RAILWAYS.—With the completion of repairs to the Seoul-Wiju Railway in April, the construction of the Yalu bridge will be commenced and the reconstruction of the Seoul-Chemulpo Railway for the purpose of reducing the number of curves, continued during the year.

AMUR RAILWAY CONSTRUCTION.—The survey of this line, which when completed will be 1,361 miles in length, was practically finished in December and there is prospect that the Russian government will give the project the necessary financial support to have the line in operation in 1912.

BURMA LINES PROJECTED.—The prospect for the early construction of the lines to Myawaddi and Ye is not bright but it is believed that as soon as the older projects are further advanced connection with the Siamese lines will be made by way of Myawaddi although the prospect for the successful operation of the line to Ye is brighter.

CHEFOO-WEI HSIEN RAILWAY.—The *Chefoo Post* announces that there is prospect of securing government aid to carry out this project. Twenty Chinese have subscribed 50,000 taels each to further the scheme and at a meeting of these interested at Chefoo, the site of the station there and other details were discussed which indicates that prospects are brighter.

SHIMONOSEKI RAILWAY BRIDGE.—The professor of the Imperial University at Tokyo has reported that a railway bridge across the Shimonoseki Straits is feasible and would cost in the vicinity of 10,000,000 yen. This construction would serve to make the through railway traffic possible but on account of the national finances will have to be postponed indefinitely.

TIENTSIN-YANGTZE RAILWAY.—The conclusion of the loan agreement with the Anglo-German syndicate has given satisfaction. Full control by the Chinese government as guaranteed has had a salutary effect on the Chinese agitation against foreign loans. The line when completed will be 675 miles in length of which the Germans will construct two-thirds.

KEELUNG-TAKAO RAILWAY.—This line for about 10 miles has been in operation for some time between Hakukohko and Koroton over temporary bridges spanning the Taian and Taikoh rivers. The permanent bridges will be completed in April and the entire line thrown open to heavy traffic. Provision is being made at Keelung to meet the increased business at that port by the O. S. K.

MUKDEN-HAI LUNG RAILWAY.—A Chinese company is being promoted, and a concession applied for, to construct a line connecting Mukden and Hai Lung via Kai Yuan. The promoters have subscribed 800,000 taels and the balance of 200,000 taels has been offered by German capitalists and it is believed that the concession will be granted should the capital needed be thus arranged for.

CANTON-HANKOW RAILWAY DEFICIT.—Of the funds paid into the treasury of the railway which amounted to $8,000,000 but $3,000,000 remains, according to reports from Canton. As a result of year's work but 6.5 miles have been laid with steel. This would indicate a rather high cost of construction and charges of misappropriation have been made. In addition to this, it is announced that Peking is getting tired of the delays that have characterized the construction of this line and has threatened to take the line over and finish it with government funds.

INDIAN RAILWAY EARNINGS.—The returns of gross earnings of Indian Railways from the 1st April to the 31st December show an increase of 205 lakhs compared with the figures for the similar period in 1906. The North-Western State Line heads the list with an increase of over 64 lakhs. Then follows the Oudh and Rohilkhand (17½); Eastern Bengal and Great Indian Peninsula (each with nearly 13); Bengal Nagpur (11½); Southern Mahratta, including branches, (nearly 10); Indian Midland (9); Bengal and North-Western (nearly 8); Burma Railways (7½); East Indian and Madras (each 6); and quite a number of other lines with lower increases. The only serious decreases are the Jodhpur-Bikaner (2½ lakhs) and the Agra Delhi Chord Line (2). The total gross earnings for the nine months represented in sterling are nearly £23,000,000. There are now 29,800 miles of open line.—*Railways.*

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

CHINESE NAVAL BASES.—Maps and plans of different points suitable for the establishing of naval stations have been forwarded to the minister of war at Peking. Among the ports referred to is the Bay of Pakhao in Kwangtung province.

NEW ZEALAND HARBOR WORKS.—The legislative council is considering a bill appropriating £350,000 to be expended in constructing an outer harbor for the port of Gisborne and authorizing the harbor board to float a loan for the purpose.

MINDANAO DOCKS.—The program for the Moro province includes the construction of a dock at Davao and the extension of the dock at Zamboanga to bring the latter out parallel with the tide. The dock at Isabela de Basilan is practically complete.

CHINESE NAVAL REORGANIZATION.—Much interest has been aroused among foreign shipbuilding firms in the proposed reorganization of the Chinese navy and representatives from Germany, Great Britain and Japan are flooding Peking with inquiries as to the contracts for construction of ships and the supply equipment.

NEWCASTLE HARBOR WHARF.—The contract has been let by the New South Wales government for the construction of a wharf in the basin of the harbor at Newcastle, which will be 1,200 feet long. The price is £12,760. When the basin now being constructed is completed it will cover an area of 90 acres of deep water, the whole of which has been dredged out.

SHIPBUILDING, GENERAL MARINE, FISHERIES, ETC.

SARDINE CANNING INDUSTRY IN JAPAN.—The development of a market for the sardines caught in Ise Bay is anticipated in view of the satisfaction reported in regard to their quality from foreign consumers.

JOHORE STRAITS FERRY.—The Tanjong Pagar Docks are constructing a large ferry capable of carrying six carriages and to be operated from the terminus of the Singapore-Kranji Railway across the Johore Straits.

HIROSHIMA OYSTERS.—A shipment of oysters from these banks were recently sent by the Marine Products School to San Francisco for trial export. If successful, a company will be formed to encourage export to America.

SHANGHAI DOCK AND ENGINEERING CO.—The new passenger launch, Clutha, for the Associated Wharf Company of Shanghai, was launched recently from the Pootung works. It has a carrying capacity of 250 passengers.

WHANGPOO PATROL LAUNCHES.—The Kiangnan Docks at Shanghai are constructing four large and powerful steam launches of shallow draft to be used as patrol boats on the Whangpoo and other waterways of the province of Kiangsu.

FORMOSAN WHALING INDUSTRY.—The Dai Nippon Whaling Co. has secured a license to operate for a period of 15 years with station at Kooshan on the South coast. The sum of 220,000 yen has been appropriated for the construction of a formidable fleet.

CO-OPERATIVE SHIPPING CO.—An association of crane men has secured the contract for the handling of all the coal that is shipped from Newcastle, N. S. W. The railway supplies all the cranes and other shipping appliances together with the power to operate them.

TWO KWANGS STEAMSHIP CO.—A prospectus has been issued at Canton making a general appeal to the Chinese to subscribe to stock of this company which proposes to engage in the shipping trade on the West River and gradually extend its operations to other points in China and even to Japan.

FIRST TRANS-PACIFIC TURBINERS.—The Tenyo Maru, the first of the turbine steamers built for the Toyo Keisen Kaisha, and which was launched from the Mitsu Bishi Dockyards in September, made 20.4 knots on her trial run last month and will start on her run across the Pacific soon. This vessel and the Chiyo Maru are of 13,500 tons each and will be the first steamers of their kind in the Pacific constructed by a Japanese shipyard.

SHANGHAI'S NEW FIRE BOAT.—This vessel, constructed by the New Engineering and Shipbuilding Works of Shanghai for fire fighting purposes in the port, made a successful trial trip recently. The float's dimensions are: length, 55ft.; beam, 14 feet; moulded depth, 6 ft. 6 in.; draught, 4 ft.; speed, 9 to 10 knots. The machinery and fittings were supplied by Messrs. Merryweather & Sons, London, through their agents, Messrs. Jardine Matheson & Co. The fire engine has a capacity of 1,500 gallons a minute.

KIANGNAN DOCYARD ACTIVITY.—The new steam tug Ping Fuh, built for the Pingshan Coal Mine Co. and launched from the docks in December, made her trial trip up the river to the seven mile reach last month making an average speed of 11 knots. She is 115 ft. in length over all; 21 ft. wide and 9 ft. in depth, propelled by a pair of compound surface condensing engines of 500 horse power. The Ping Chow, a sister ship, was launched from the Kiangnan Dockyards, the latter part of January.

NEW JAPANESE WARSHIPS.—The six new warships to be constructed or finished this year include two battleships, one at Yokosuka and the other at Kure, a large type destroyer and two ordinary destroyers (*Ayanami* and *Isonami*) at Maizuru and a dispatch boat (*Mogami*)

at the Mitsubishi Shipbuilding Yard and Engine Works, Nagasaki. Of these the *Mogami, Ayanami* and *Isonami* are expected to be completed and launched in course of this year. The construction of the two battleships and the large destroyer will probably be delayed more or less on account of Budget curtailment.

MINES, MINERALS AND THE METAL TRADE

EASTERN SMELTING CO.—This company has established a branch office at Kuala Lumpur.

CHING-CHING MINING COMPANY.—The capital of this company has been fixed at 500,000 taels.

PUSING BAHRU TIN CO.—The new plant ordered by this company is arriving and will be installed as expeditiously as possible.

HOI KIN COAL DEPOSITS.—The discovery of deposits of coal in Hoi Kin district has interested the Canton authorities and a reconnoisance is under way.

SHANTUNG GOLD DEPOSITS.—British capitalists have asked for a concession from the Peking government to develop the gold mines located at Langfushan in Shantung province.

PEKING SYNDICATE INDEMNITY.—The agreement reached in regard to the syndicate's mining concessions in Shansi provides for the payment of taels 2,700,000 to reimburse the syndicate for the relinguishment of their rights.

INDO-CHINA MINING.—To encourage the gold mining industry of the colony, the minister for the colonies at Paris has authorized a reduction of the import duties on mining machinery brought into Indo-China to eight francs on every 100 kilogrammes.

YOUNG WALLSEND COLLIERY RESUMES.—After a suspension of operations for over 15 years this colliery has been emptied of water and an offer has been made for its purchase. It contains two seams of coal and the property covers an area of 600 acres.

CHINTING-TEHCHOW RAILWAY LOAN.—Included in the estimates attached to a recommendation made by the Board of Posts and Communications for a foreign loan to cover the expenditures for public works for the year, was the sum of 5,000,000 taels for this railway.

CHINESE MINING METHODS.—The investigations made by the Mines Department, F. M. S., on the Chinese dumping grounds at Rawang have resulted in a refutation of the allegation that the Chinese miner is wasteful. Little or nothing was found after extensive boring operations.

JAPANESE OIL REFINERIES.—The petroleum refining industry is engaging the attention of Japanese capitalists. The Rising Sun Oil Co. has just completed a new factory at Shinjuku and prepared plans for the erection of another near Shimizu. Mr. Soichiro Asano, a well known operator, is also interested in the construction of a large refinery at Suma, a point near Kobe.

HOKKAIDO COAL FIELDS.—There is great activity on the eastern coast of Hokkaido in the development of the coal deposits there. Various collieries are being operated by the Kushiro Colliery Co., Osaka Colliery Co., Messrs. Yamagata, Yasuda and others. Recently the Furukawa Mining Co. were granted a concession to work new collieries in Tokachi province. The coal mining industry has received such an impetus in the last year that it is rapidly assuming the position of first place in the island.

TIN IN SIAM.—The operations of the Rahman Hydraulic Tin Co. Limited, at Rahman, Siam, have been more successful than the promoters anticipated. The output a month at present is 221 piculs which is over 60 piculs greater than the estimate. This is the result of a very incomplete plant. The pipe line with four miles of ditch will be completed in April but an additional three miles will be necessary before the plant may operate in full swing. The *Singapore Free Press* states that the report augurs well for the future of the company.

F. M. S. GOLD OUTPUT.—Batang Padang is the only district in Perak where gold is mined. Though it exported no gold during 1907, the Government collected a revenue of \$420.10 on gold won but not exported. Kuala Pilah in the Negri Sembilan exported during the year 1907 35.15 ounces of gold yielding a duty of \$54.06. Raub exported during the same year 12,915.55 ounces of gold yielding a duty of \$10,907.94 while Kuala Lipis did not export any but a duty of \$1,165.00 was collected during the year on gold won but not exported.—*Perak Chronicle.*

HSI HSI LING COAL MINES.—The Chinese Company operating the coal deposits about three miles from the town of Hsi Hsi Ling in Fenchofu through the agency of Messrs. Buchheister & Co. has opened up the first level of coal to fresh operation after over 25 years of inactivity, says the *Peking and Tientsin Times* correspondent. There are two additional levels to be redeemed from the water. This company has been operating for about one year. Excellent bituminous coal that burns with unusual heat and making excellent coke is found in large quantities.

BURMA MINING CONCESSIONS.—Among mineral leases and licenses granted in Burma during the official year 1906-07, the following were the more prominent:—the Burma mines Railway and Smelting Company, Limited, secured a lease over an area of about 2,496 acres in the State of Tawngpeng in the Northern Shan States for mining for silver, copper, lead and zinc, the Company is officially reported to be building a railway and to be carrying on its operation with energy; the Burma Oil Company obtained another mining lease for petroleum bearing areas in the Yenangyaung township of the Magwe district, a third mining lease went to the Burma Development Syndicate, Limited, of some 3 square miles of land in Maliwun township in the Minbu district for tin-mining operations. The Burma Mines Railway and Smelting Company of Mandalay also secured two prospecting licenses, one for iron, one at Twuinge and the other for iron and minerals containing iron in Thoudaung, both places being in the Maymyo sub-division.—*Capital.*

FINANCIAL AND MISCELLANEOUS

FUJI PAPER MILL.—An addition to the modern machinery installed in this plant turns out 200 feet of cardboard, 86 inches wide, a minute.

BANGKOK BANK BUILDING.—The building for the branch of the Chartered Bank at Bangkok will be constructed by Messrs. Howarth, Erskine, Ltd.

PEKING HARMONIUM FACTORY.—Peking has a new industry in the form of a harmonium factory which is operated entirely by Chinese and backed by Chinese capital.

JAPAN VOLCANIC ASHES CO.—The factory of this company at Osaka is now in operation. The output is 100,000 bags a month of the product to be used in the manufacture of cement.

YOKOHAMA SILK EXPORT.—From July 1st to December 31st, 1907, there were 68,961 bales of silk exported from the port of Yokohama. Of this 23,668 bales went to Europe and 45,492 to America.

THE TOYOKUNI BANK.—The Toyokuni bank, a new organization floated by Messrs. Hamaguchi, Kondo, Kamiya and others with a capital of ten million yen, is expected to be inaugurated in December.

NEW BANK AT PEKING.—A bank with a capital of 2,000,000 dollars is being promoted by Chinese and Japanese capitalists and will be located at Peking. An office has already been opened at Tientsin.

IMPERIAL BREWERY.—The new brewery at Hongkong is rapidly securing the local trade and from reports the quality of the product is good. The management has secured the latest and most modern equipment.

AUSTRALIAN MINERAL WATER.—The U. S. Commissary Department of the Division of the Philippines has placed an order with the Helidon Spa Water Co. of Brisbane for the supply of 240,000 bottles of Helidon spa.

AGRICULTURAL COMPANY FOR THE NETHERLANDS INDIA.—The Noembing Agricultural Co. has been organized at The Hague with a capital of 500,000 florins for the purpose of engaging in agriculture in Netherlands India.

TOA FLOUR MILLING CO.—The mills of this company, which has a capital of three million yen, have been in operation at Onagigawa, Tokyo, since October last and is turning out about 2,600 bags per diem. It has a branch at Hankow.

JAPAN COTTON MILLS LOAN.—The Osaka and Nippon Cotton Mills have negotiated a loan of a million yen each with the various bankers of Tokio and Osaka. The loan is unredeemable within three years with interest at 7% per annum.

THE KYOTO LOAN.—The attempt to float this loan of 10,000,000 yen has been found impossible at this time but the sum of 3,000,000 yen has been arranged for with the Mitsu bank. The price of the bonds was 95 and the rate of interest 6%.

SANDAKAN ICE PLANT.—The manufacturing plant of the Ice and Aerated Water Works of Sandakan is nearing completion and will provide British North Borneo with the supply of this product which has hitherto been imported.

JAVA SUGAR CROP.—The crop for the year 1907 amounted to 19,444,138 piculs, an increase of over 2,000,000 piculs compared with the previous crop and it is anticipated that there will be a much larger proportion in increase in 1908.

JAPANESE SARDINE CATCH.—Along the coast of Sosa district and Kujyukuri, the well-known fishery in Kasusa province, the catch of sardines is reported to have been unusually abundant. The total catch at Kujyukuri up to the evening of Saturday last was valued at over 100,000 yen.

MORO PLANTATION CO.—This company's operations on the Basigan river, on the east coast of Zamboanga, have met with success and the company is on a paying basis. Over 10,000 cocoanuts have been planted and are doing well and 175,000 cassava plants will mature in a short time.

TRONOH MINES.—The output from Tronoh Mines for the month of October was 2,659.19 piculs of tin ore: The totals for the ten months of the current year were:—January, 1,300; February, 1,723; March, 2,065; April, 2,464; May, 2,338; June, 2,073; July, 3,353; August, 2,824; September, 2,544; October, 2,659.

MARINE ENGINEERS' INSTITUTE IN NEW HOME.—The new quarters of the Shanghai Marine Engineers were formally opened in the Whiteway Laidlaw Building last month. The Institute occupies the entire top floor which is divided into social hall, billiard room, library, etc., all of which are most comfortably furnished.

IMPERIAL FLOUR MILL.—The Imperial Flour Mill Company was inaugurated on Nov. 5, the construction of its large factory at Kametaka in Sunamura, South Katsushika district, having been finished. The company was organized in August last year and has a capital of 500,000 yen. The mill can turnout 600 barrels of flour a day at present.

JAPANESE GOVERNMENT SAWMILLS.—The total output of timber at the Government sawmills stands at present at 250,000 square ft. The authorities have decided to establish four new sawmills at Fuke (Kagoshima), Kajiosawa (Miyagi), Hiroshima and Shikoku, for which purpose an expenditure of some 300,000 yen has been placed in the coming fiscal year's budget.

FOREIGN CAPITAL FOR JAPAN.—A contract has been signed with the representatives of the Belgian Syndicate at Tokio, where-by the Oriental Sugar Manufacturing Co. shall reduce the Japanese company's capital from two million yen to half a million, which is paid up, and foreign capital is to be added thereto to make two million yen fully paid up, practically organizing a new concern.

TSINGTAO UNIVERSITY.—The German government is perfecting plans for the establishment of an university at Tsingtao devoted to professional training. The courses will include preparatory engineering in all its branches, medicine, law, agriculture and forestry. The estimated cost is 300,000 marks and the annual expenditure 75,000 marks. The support of the Peking government has been solicited.

ADDITIONAL POSTAL REGULATION.—An additional postal rule makes the postage on letters from the Straits Settlements for Australia, British Guiana, B. N. Borneo, Mauritius, Newfoundland, Natal, Orange River Colony, the Transvaal, and Zanzibar four cents up to one ounce, and four cents for each additional ounce, or part of an ounce. This is supplementary to the notification of Sept. 20th and went into force on Nov. 1st.

BRITISH BEER BREWERIES SYNDICATE.—This company has been organized with a capital of £10,000 and proposes to purchase from the British Beer Breweries, Limited, a license to brew from S. T. yeast in Burma, Singapore, Straits Settlements, F. M. S., Hongkong, Siam, Java and that portion of China within 300 miles west of Hongkong and to enter into a contract with the Cape Lands and Minerals Syndicate, Limited.

KWANTUNG FISHERIES.—Fishery in Kwantung province seems to be making steady progress. There are at present 14 fishing guilds at Tairen and Port Arthur, the number of men employed being 935. Besides these 102 vessels last spring season and 48 more this autumn mostly from Kyushu and Yamaguchi were engaged in the waters along Kwantung coast. The total catch for the spring season was 18,485 kwan of 14,165 yen in value.

JAPANESE BRICK FACTORIES IN MANCHURIA.—The Manchuria Joint-Stock Brick Manufacturing Co. is the name of an organization now being promoted by Japanese capitalists, with a capital of 500,000 yen and has for its object the establishment of a large plant at Choushuiton in the Kwantung peninsula. It is also reported that a number of similar organizations are being promoted in view of the extensive construction works proposed in Manchuria.

JAPANESE CUTTLE FISHERIES FLOURISH.—Along the coast of Oki province the catch of cuttle fish is reported to have been extraordinarily great of late. During the month the total quantity caught was estimated at 4,000 tons valued at about 150,000 yen, the average of a night's catch being no less than 5,000 yen. The steamship company at Sakai port has decided to charter more steamers for transporting these fish, the liners being too limited for the quantity of the product.

INSTITUTE OF ENGINEERS AND SHIPBUILDERS OF HONGKONG.—The annual report of this organization submitted at the annual meeting, February 28th, shows 122 ordinary members; 17 associate members; visiting (a) members, 42; visiting (b) members 45 and honorary members, 1, making in all 227. Nineteen members resigned and forty members admitted during the year, while eighty names were written off the books as absent. On the date of the report nineteen candidates were proposed for membership.

FORMOSA CAMPHOR MONOPOLY.—Hitherto the Government in carrying out the camphor monopoly has had Messrs. Samuel Samuel Co. as sole agents to sell camphor. But the term for this privilege expires in March next, and it is now stated that the Mitsui Firm is endeavoring to get this privilege after that date. The Government, however, is said to have the intention of selling camphor at its own hands, and some officials will be dispatched to London and New York in order to deal with the camphor markets in those places.

JAPANESE SILK MARKET.—The financial panic in New York has badly affected the Japanese silk market. Both the Tokyo Staples Exchange and the Yokohama Silk Exchange suddenly suspended transactions on Nov. 6 on the plea that they should adjust their books. This discouraging state of affairs was doubtless owing to the steady fall of quotations, representing about yen 30 on the 6th inst. On the Yokohama market, the quotation on that day fell to yen 101 and it is more than probable that, if transactions be continued, a further fall will result. Hence the suspension.

JAPAN'S FORESTRY BUREAU.—It is reported that in the next budget of the Forestry Bureau of the Commercial and Agricultural Department the revenue is roughly estimated at 10,000,000 yen, which shows an increase of about 3,000,000 yen compared with the preceding year. The expenditure is estimated at 5,000,000 yen with profit of 5,000,000 yen. To the three saw mills now in existence five new ones were recently added and it is now decided that the establishment of two more should be included in the budget of the coming year. Great efforts will be taken to enhance the sources of revenue on the head of timber and to improve methods. Two of the proposed mills will probably be established in Kushu.

YALU LUMBERING INDUSTRY.—The *Nichi Nichi Shimbun* has an interesting note about forestry enterprise in the Yalu Valley. At present work of this nature on the left bank of the river is directed by an office, Yeirin-sho (forest exploitation bureau), while that on the right bank is directed by an office called the Mokuzai-sho (timber bureau), both of which are under the direction of Major-General Kojima. The work on the left bank is carried on conjointly by Japanese

and Koreans, and that on the right bank by Japanese alone, pending the co-operation which the Chinese hesitate to engage in. At present the total capital employed is only 2 million *yen* and the net profit is 600,000 *yen* a year, but if the work of exploitation was conducted on a large scale on the right bank, the profit accruing from the same capital would be 4 million *yen* a year.

PRYE DOCK EXTENSION

The Pinang *Gazette* welcomes the prospect of improvement to Prye Dock augured by the notification in the Government Gazette to acquire 18 acres of land for the purpose of improving and extending the dock. It says:—

The premises and works of the Prye River Dock occupy at present a piece of land nearly rectangular in shape, bounded on the northwest and northeast by the Prai River and the Prai Railway Station respectively. The land which is now to be acquired compulsorily was bought some years ago for about $15,000 from the Wellesley (Penang) Estates Company by the American Sheet and Tin Plate Company, Ltd., whose contemplated operations were interfered with by Sir Frank Swettenham when he was Governor of the Colony. The land has been kept in cultivation and is now to be used for the purpose of extending the dock in the southeast and southwest directions. Along the whole of the back boundary, running parallel to the river, a strip of land 3 0 feet wide and 1,650 feet in length, is to be acquired. The river frontage will be extended by about 200 feet at the western corner, and a further piece of land will also be added about the same width, behind this frontage and adjoining the southwest boundary, with a depth of 1,440 feet from the River.

We are informed that a branch of the railway will be laid through the dock property to a wharf which is to be built and that a number of buildings will be erected. There appears to be no intention to construct new docks.

This acquisition of land for the purpose of extending the dock premises may be taken as an earnest of the authorities' intention to make Prye Dock both a more profitable undertaking and more useful to the community. We are fully convinced that if only the necessary facilities are provided the dock will find plenty of remunerative work to do.

A new Far East Bank with Russian and Japanese capital of $500,000 is being formed. Its object is, by trading advances, to help sell the products of both countries.

The new dock at Colombo, Ceylon, is 700 feet long, and longer than the docks at Singapore, Hongkong, and Bombay, which are 500 feet in length.

Last year the Shantung Railway of China carried 795,000 passengers (increase of 42 5 per cent), and 30 300 tons of freight (increase of 65 per cent larger than the preceding year). The Shantung Mining Company raised 134 000 tons of coal during the year, employing 2,000 Chinese at from 20 to 40 cents, gold, a day of eight hours.

Queensland (Australia), sugar planters, says the *Indian Planters' Gazette*, are much concerned about the labor question on account of the expressed determination of the Federal Government of Australia to immediately enforce the prohibition of colored labor. The position is that after four years, operation of the white labor bonus of $10.00 per ton of sugar, only one-third of the sugar crop has been grown by it. The total acreage in sugar cane has decreased from 32,907 acres in 1895 to 21 525 acres in 1905.

Siam is not only well-governed, but from year to year is presenting ever increasing opportunities for the sale of foreign manufactured goods, according to the testimony of German business men resident there. All the trading doors of Siam are wide open.

Formosa produces quartz gold, placer gold, coal, sulphur, and a small quantity of petroleum. The production of quartz gold, 47,341 ounces, is double what it was in 1902, in Japanese hands; placer gold, 3,050 ounces; coal, 91 216 tons, and sulphur 1,121 tons are produced last last year.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

Item	Unit	U. S. Currency.
ABRASIVES.—		
Bort, good drill quality	carat	$ 85 00
Carborundum, grains	lb	.10- 17
Corundum	"	.07- 10
Emery, grain	"	.035-.015
Pumice Stone, American powdered	100 lbs	1.60-2 00
ACIDS.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18 00
Aluminum, Sulphate Com'l	lb	1,25-1 60
Antimony, needle	"	.07¾- 08
Arsenic, white	"	.06⅞-.07¼
ASPHALTUM.—		
Trinidad	ton	30 00-32.50
California	"	22.50-30 00
Bleaching powder, 35%	100 lb	1 25-1 40
Blue Vitriol	"	6 00
Bone Ash	lb	.02¾- 04
Borax	"	.07½- 08
*Caps detonating	M	7 50
CEMENT.—		
Portland, American	500 lbs. bbl	1.55-1 60
Foreign	" "	2.25-2 90
Rosendale	300 " "	85
*Green Island	375 lb. bbl	2 65
*Alsen		2 75
*Dromedary		2 50
*Rizal		2.50
*Independencia		2.50
CLAY, CHINA.—		
American common	lg. ton	8 50-9 00
Foreign	"	11.50-17.50
COALS.—		
Japanese		5 25
Australian		5 95
Copper	lb	.16½-.16¼
Dynamite 40%	"	.20
redspar ground best	sh. ton	14 00
el brick American	M	30.00-40.00
Imported	"	30 00-45.00
Fire clay, St Louis Mill	ton	2 50
*Fuse-Blasting	1 000 ft	7 50
Graphite-American ore, common	lb	01 10
Artificial	lb	.06
Gypsum-Fertilizer	sh ton	7 00
Powdered	sh ton	12 to-20
Lead	lb	.03½- 04½
Magnesite-Greece, crude, 95%	lg ton	7.00-8 00
Bricks, domes	per M	160-200
Manganese, pure, 98-99%	lb	75
Ore, 80 85%	sh. ton	35 00-60 00
Mercury, export flask	75 lbs	38 00 39 00
PAINTS AND COLORS.—		
Litharge American P'w'd	lb	07½- 07¾
Ochre, Am. Com	sh. ton	8 50-9 00
Paris green pure, bulk	lb	26
Turpentine, spirits, bbl	gal	54-54½
White lead, Am. dry	lb	06⅞- 07
Am. in Oil	"	.07½- 07⅞
Zinc, white, Am. extra dry	"	.05⅜- 05⅞
Phosphates, Acid	per unit	65- 67½
Florida hard rock	lg. ton	10 25-10 50
Land pebble 68%	"	5 75-6 09
Potassium Cyanide (98-99%	lb	18 - 10
Platinum	oz	27 00-29 50
Platinum, Scrap	oz	20 00-21 00
Spelter	lb	058- 055
Nickel	lb	.015- 06½
Cobalt unrefined	"	.20- 45
*Powder, black blasting A	lb	.1½
*Judson	"	180
Pyrite, Domestic Non-arsenical,		
lump	unit	.11- 11½
Imported non-arsenical lump	"	.14- 14½
Imported, arsenical	" "	.13-13½
Saltpeter crude	100 lbs	4 62½- 45
Silica, Lump quartz	lg. ton	2 50-4 00
Ground quartz ordinary	"	13 00-15 00
Glass sand, ordinary	"	2 75
Silver	oz	61⅜
Sodium cyanide (100% KCN)	lb	.18-.19
*Steel, octagon drill	lb	.14
Sulphur, Louisiana prime	lg ton	19 00-19 50
Roll	100 lbs	1 85-2 15
Flowers sublimed	"	2 20-2 60
Talc—Domestic	sh. ton	15 00-25 00
Italian, best	"	35 00-40.00
Tin	lb	.42
Zinc,	"	.15
Dust	"	.05-.06½

*Manila quotation.

HEMP STATISTICS, 1st MARCH, 1908.

(Courtesy of C. S. NICHOLSON, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 29 February 1908		116,266 *Bales.*
Arrivals of hemp at Cebu up 29 February 1908		41,489 *Bales.*
		157,755 *Bales.*
Stocks on hand in Manila and Cebu on 1st January, 1908		129,359 *Bales.*
TOTAL		287,114 *Bales.*
Exports to all ports to date 29-2-08	133,518 *Bales.*	
Local consumption estimated at	800 "	134,318 *Bales.*
Total stocks at Manila and Cebu on 1st March, 1908		152,796 *Bales.*

EXPORT OF HEMP, FEBRUARY, 1908.

Date		*Vessel*	*London*	*L'pool*	*Atlantic U. S.*	*Pacific East California*	*Continent.*	*Australia*	*Other Pts.*	*Bales*
Feb.		F'wd:—	31,733	13,666	7,491	2,538	6,831	1,065	2,370	65,694
"	1	Zafiro	200	200			800		800	2,000
"	"	Indrapura....Cebu			9,911					9,911
"	"	Sungkiang......do.	966	75			50			1,091
"	"	Erroll			14,855					14,855
"	5	Benvorlich	6,695	4,253						10,948
"	"	Kumeric				900			118	1,018
"	7	Loongsang	400				801			1,201
"	"	Rubi							532	532
"	14	Zafiro	500						450	950
"	"	Changsha						40		40
"	"	Gange	1,225	1,049			500			2,774
"	"	Yawata Maru							300	300
"	15	Yuensang	55	1,100			350		150	1,655
"	17	Shawmut							304	304
"	18	Isla de Panay		1,500			32			1,532
"	"	Antilochus				4.100				4.100
"	19	Shimosa			5,114					5,114
"	21	Loongsang		450			30			480
"	23	Rubi							500	500
"	"	Sungkiang..Cebu.		400					120	520
"	"	Gange ....do.	2,896	1.630			500			5 026
"	24	Kumano Maru						1,403		1,403
"	25	Aldeham							245	245
"	"	Taming		1,175			150			1,325
			44,670	25,498	37,371	7,538	10,044	2,508	5,889	133,518

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for February, 1908.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent per annum at Present Quotation	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 s $13,500,000 i $250,000	$2,000,387	31-12-07	Final of £2 on old and £1-10/- on new shares for ½ year ending 31-12-07	5½	$700 sellers £78
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £12,735 $300,000	$71,293	31-12-06	$2 (London 3/6) for 1903	....	$51
Russo Chinese Bank	18	Rbs. 15,000,000 Tls. 2,000,000	80,000 16,000	Rbs. 187½ Tls. 125	Rbs. 187½ Tls. 125	g Rbs 7,130,500 s Rbs 2,000,000 s Tls. 800,000	Rbs 41,000	31-12-06	9 per cent		Tls. 175
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $219,058 u $401,959	Nil.	31-12-06	$20 for 1906	8½	$242½
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 100,000 f Tls. 48,942	Tls. 204,424	30-6-07	Final of 7/6, per share making in all 15/- for 1906 (Tls. 2.65)	6	Tls. 85 sellers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,00 ,000 g £70,000 f $456,407 j £125,137.15 u $817,628	$1,460,490	31-12-06	Final of $12 making $42 for 1905, and interim of $30 for account 1906	5	$850
Yangtsze Ins. Association, Ld. do. do. (new)	1862 1907	$1,040,000	8,000 4,000	$100 $100	$60 $60	$850,000 j $159,143 $1,988	$394,520	31-12-06	$12 for year ending 31. 12. 05	....	$152½ $140 buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $320,449 f $7,616	$362,980	31-12-06	$6 and bonus $2 for 1905	8½	$98
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,256,483	$435,236	31-12-06	$40 for 1905	12	$332½
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$365	31-12-06	$1 for 1906	7	$14
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $96,988	Nil.	30-6-07	$4 for year ended 30-6-07	10	$40
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $575,000 f $ 75,279 $ 20,000	$16,437	31-12-07	$1½ for 2nd half year making in all $2½ for year ending 31-12-07	8	$28½ ex div.
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£60,000 i £270,000	£3,694	31-12-06	5/- @ ex. 2-2⅜ = $2.24 per share for 1906	3½	$40 $28
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 54,372	Tls. 13,327	31-12-06	Interim of Tls 1½ for a/c 1907	12 11	Tls. 45 Tls. 50 sellers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£400,000 i £1871	£172,370	31-12-06	Interim of 1/- (Coupon No. 8) for a/c 1907	4½	45/-
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $32,957	$137	30-4-07	$1.00 / 50 cts. for year ended 30-4-07	4 4	$25 buyers $12½ buyers
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 419,479 e Tls. 62,000 i Tls. 81,200 q Tls. 30,000	Tls. 18,730	31-12-06	Final of Tls. 2 making Tls. 6 for 1906	12½	Tls. 47 buyers
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o $345,741 e $450,000 r $ 56,848	$9,218	31-12-06	$8 for year ending 31-12-06	7	$115 sales & b.
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $138,523	31-12-06	$3 for 1897	....	$15 sales
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 8,935	31-8-06	Tls. 4. (8%) for year ending 31-8-06	5	Tls. 80 sellers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £150,000 h £54,390	£11,556	28-2-07	Final of 1/6 - Making 3/- for 1907 (Coupon No. 9)	7½	Tls. 16 sellers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £11,358	31-3-07	No. 12 of 1/- = 48 cents	....	$8
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$64,124	$10,335	31-12-06	$1⅜ for year ending 31-12-06	12½	$14
Hongkong & Kowloon Wharf & Godown Co., Ld. do. do. new	1886 1907	$3,000,000	40,000 20,000	$50 $50	$50 $50	$550,000 t $23,152 i $30,000	$3,047	31-12-06	Interim of $2 for six months ending June 30th 1907	6½	$54 sa. & b. old $52½ sa. & b. n.
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500 000	50,000	$50	$50	v $50,000 $100,000	$441,442	31-12-07	Final of $4 making $8 for 1907	8½	$94 ex div.
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 10,459	30-4-07	Int. of Tls. 2½ for 6 months ending 31-10-1907	7½	Tls. 80 sales
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	14) 36,000	Tls. 100	Tls. 100	b Tls. 487,210 r Tls. 100,000 p Tls. 190,100 e Tls. 75,000	Tls. 23,117	31-12-06	Interim of Tls. 8 for a/c 1907	8½	Tls. 214 buyers
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 15,000	Tls. 3,388	28-2-07	Tls. 6 for 14½ months ending 28-2-07	6	Tls. 105
Astor House Hotel Co., Ld.	1901	$750 000	4) 30,000	$25	$25	$30,000	$10,908	30-6-07	$2½ for year ending 30-6-07	10	$22½ buyers
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-06	20 per cent. for 1906	....	Tls. 70 sellers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1 000	$9,178	31-12-06	$1.80 for 1906	13	$14 sellers
Hongkong Hotel Co., Ld.	1866	$600,000	12,000	$50	$50	$648,975 r $36,075	$10,925	31-6-07	$4 for 1st half-year ending 30-6-1907	7½	$104
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$36,915	31-12-07	Final of $3½ making $7 for year ending 31-12-07	7	$100
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $217,426 e $50,000	$4,621	31-12-07	70 cents for 1907	7	$10 buyers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued)

STOCKS	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$653	31-12-07	$1¾ for 1907	7	$25 ex div.
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls 1,523,045 / e Tls. 170,000	Tls. 107,547	31-12-07	Final of Tls. 3 & bonus of Tls. 2 making in all Tls. 8 for 1907	8	Tls. 102½ buyers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 71,685	Tls. 1,973	31-12-06	Final of Tls. 5 making Tls. 8 for 1906	....	Tls. 96 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,541	31-12-07	Final of $2.10 making in all $4.10 for year endg. 31-12-07	8½	$48
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 / Tls. 23,276	Tls. 8,807	31-10-07	Tls. 2½ for year ended 31-10-07	4½	Tls. 56 sellers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $60,000	$14,269	31-7-07	50 cents for year ending 31-7-07	5½	$9
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 85,519	30-9-07	Tls. 6 for year end. 30 9-06 (8%)	....	Tls. 55 buyers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 6,308	31-12-06	Tls. 8 for 1906	....	Tls. 75
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	....	Tls. 270 buyers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12-6	£1,299	£638	31-12-06	1s. 3d. for 1906	9	$ 7½
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	none	Nil.	31-12-06	$1 for 1904	....	$10½ sales
China Flour Mill Co., Ld.	---	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 50,000	Tls. 889	31-12-05	Final of Tls. 5 making Tls. 10 for 1905	....	Tls. 48 buyers
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17) 50,000	$10 $1	$10 $1	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$6 sales
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$120,000	$3 593	31-12-07	80 cents for 1907	9	$9 sales
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	i $60,000 / $5,000	$2,974	31-7-07	$1.30 for year ending 31-7-07	7⅝	$17
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$11,000	$10,804	31-12-06	Interim div. of 50 cents per share for % 1907	8½	$11¾ sales
Hall & Holtz, Ld.	....	$420,000	21,000	$20	$20	$186,000	$15,002	28-2-07	$2½ for year ending 28-2-07	11	$22½ buyers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$2,953	28-2-07	$1.00 for year ending 28-2-07	6⅔	$15
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $105,000	$4,361	31-12-06	Interim of $4 for half year end. June 30th 1907	9½	$240
Hongkong Rope Manufacturing Co., Ld.	1883	$500,000	50,000	$10	$10	$65,000	$4,212	31-12-06	Interim of 80 cents per share for % 1907	8	$26 sales
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 / i Tls. 27,603	Tls. 17,127	31-10-06	Final of Tls. 7½ & bonus of Tls. 2½ making in all Tls. 32½ for 1907	8	Tls. 425 buyers
Peak Tramways Co., Ld. Do. (New)	1907	$750,000	25,000 50,000	$10 $10	$10 $1	none	$2,655	30-4-07	$1 per share for period from 19th Oct. to 30th April, 1907	8	$13 $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	none	31-12-07	None	....	$7 buyers
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls 50	Tls. 50	d Tls. 100,000	Tls. 7,990	31-12 06	Interim of Tls. 3½ for % 1907	....	Tls. 106 buyers
Shanghai Horse Bazaar Co., Ld.	1904	Tls. 270,000	5,400	Tls. 50	Tls. 50	Tls. 67,323	Tls. 9,751	31-12-05	Tls. 4 for 1905	....	Tls. 40 sellers
Shanghai Pulp & Paper Co., Ld.	....	Tls. 450,000	4,500	Tls. 100	Tls. 100	Tls. 45,000 / e Tls. 8,000	Tls. 3,354	31-12-06	Final of Tls. 5 making Tls. 10 for 1906	....	Tls. 45 buyers
Shanghai-Sumatra Tobacco Co. Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 / u Tls. 50,000	Tls. 7 843	31-10-06	Interim of Tls. 5 25%) account 1907	....	Tls. 130 sales
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 85,592	31-12-05	Interim of 15/- for % 1907 (old) / Interim of 11/3- for % 1907 (n.)	....	Tls. 360 buyers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $41 934	28-2-06	None	....	$20
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	78	31-5-07	40 cents for year ending 30 5 07	6⅔	$6 sellers
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 / e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 97 sellers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$111	31-12-07	50 cents for 1907	5	$10 buyers
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$13,000	31-5-07	80 cts. on 9,900 ord. shares & $19.80 on 100 founders' shares for year ending 31-5-07	8	$10
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 / $25,000	$5,482	31-12-06	Interim of 30 cts. for % 1907	6⅔	$10 buyers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent. for year endg 31. 7 07	....	$130 buyers
William Powell, Ld.	1901	$150,000	15,000	$10	$10	none	$41	30-6-07	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$5½ buyers

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st. 1917	par. Plus accrued interest
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par. Plus accrued interest
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 99 Plus accrued interest
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	Tls. 105 Plus accrued interest
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par. Plus accrued interest
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½. Plus accrued interest
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 5,725 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 842 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 198 shares unissued.
15 22,250 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government-Kuping Tls. 5,000,000.
19 75,000 shares unissued.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, February, 1908)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	....	25% for year ending 31-3-07	Belat Tin Mining Co., Ltd.	9.50	9.75	$ 9.50
1907	$300,000	225,000	22,500z*	10	10	....	....	Bruang Ltd.	7.00	7.50	7.00
1901	$600,000	600,000	60,000	10	10	....	20% for year ending 30-4-07	Bruseh Hydraulic Tin Mining Co., Ltd.		14.50	14.50
1903	£400,000	350,000	350,000a	1	1	....	....	Duff Development Co., Ltd.	1.25	1.35	1.35
1907	$400,000	375,000	37,500b	10	10	....	....	Kanaboi, Ltd.	4.00	4.50	4.50
1901	£60,000	60,000	60,000	£1	£1	....	1/6 interim during 1907	Kinta Tin Mines, Ltd	....	11.00	11.00
1906	£100,000	100,000	100,000	£1	£1	....	....	Kledang Tin Mining Co., Ltd.	6.75	7.00	6.75
1905	$150,000	99,000	9,900c	10	10	6,000	25% interim for 1907	Kuantan Tin Mining Co., Ltd.	....	13.50	13.50
1906	£120,000	120,000	120,000	1	1	....	....	Lahat Mines Ltd.	..	7.50	7.50
1906	£30,000	30,000	30,000	£1	£1	....	....	Malaya and Siam Corporation, Ltd.	.	17/6	17/6
1906	$450,000	337,500	45,000	10	7.50	....	....	Malacca Tin Dredging Co., Ltd.	....	6.50	6.50
1906	£250,000	179,500	600,000h	5/-	5/-	....	....	Pahang Consolidated Co., Ltd.	29/6	30/6	30/-6
			100,000	£1	£1	....	....	" " " *7% Pref.*		....	nominal.
1904	£120,000	100,000	100,000d	1	1	£6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	....	9.00	9.00
1905	£27,000	21,750	21,750e	1	1	....	1/- interim during 1907	Rambutan, Ltd.		9.00	9.00
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully. pd.*	6.00	6.25	6.25
			150,000	1	18/10	....	1/- " " "	" " " *Contributory*	6.00	6.25	6.25
1905	£40,000	40,000	40,000	1	1	....	....	Redhills Tin Mining Co., Ltd.	....	7.75	7.75
1898	2,500,000	2,500,000	25,000	100	100	....	52½% for year ending 31-12-06	Redjang Lebong Mining Co.	...	....	660.00
1900	$110,000	110,000	22,000	5	5	....	10% for 1907	Royal Johore Tin Mining Co., Ltd.	....	1.50	1.50
1907	$500,000	$500,000	$50,000	10	$7.50	....	....	Salak South, Ltd.	6.00	6.50	6.50
1907	£80,000	80,000	80,000	1	1	....	....	Sempam Tin Mines, Ltd.	....	5.75	5.75
1906	$850,000	850,000	85,000	10	10	25,000	27½% during 1907	Serendah Hydraulic Tin Ming. Co., Ltd.	10.50	11.00	11.00
1899	$230,000	230,000	23,000	10	10	....	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd.	4.00	4.25	4.25
1907	£90,000	70,000	70,000a*	£1	£1	....	....	Tekka, Limited	10.50	11.00	11.00
1902	£160,000	149,185	149,185f	1	1	....	5/- interim during 1907	Tronoh Mines, Ltd.	15.00	15.50	15.50
1907	$60,000	60,000	600	100	100	....	....	Tunggal Tin, Ltd.	20.00	25.00	20.00
								RUBBER			
1905	£150,000	£116,625	46,500g	1	1	....	10% interim for 1907	Anglo-Malay Rub. Co., Ltd. *Fully paid*		....	£3 7s. 6d.
			93,500	1	15/-	....	....	" " " *Contributory*		....	£3 5s. 0d.
1905	$200,000	105,000	10,500	10	10		12½% interim for 1907	Balgownie Rub. Estate Ltd. *Fully paid*	....	20.00	$20.00
1904	£30,000	15,250	7,000i	1	1	....	....	Batu Caves Rub. Co., Ltd. *Fully paid*	....	....	£5 0s. 0d.
			11,000	1	15/-	....	....	" " " *Contributory*	....	....	£4. 2s. 6d.
1903	£70,000	61,000	61,000j	1	1	....	10% interim for 1907	Bukit Rajah Rubber Co., Ltd	....	....	£4. 12s. 6d.
1906	$150,000	125,000	12,500k	10	10	....	....	Castlewood Rubber Co., Ltd	....	10.50	$10.50
1904	£12,000	10,500	6,000	1	1	....	15% interim for 1907	Cicely Rubber Estates Co., Ltd	....	5.5.0	£5. 5s. 0d.
			6,000	1	15/-	....	15% interim for 1907	" " " " *5% Pref.*	....	6.0.0	£6 0s. 0d.
1905	£75,000	55,000	55,000l	1	1	....	10% for year ending 31-12-06	Consolidated Malay Rub. Estates, Ltd.	2.10.0	2.15.0	£2 15s. 0d.
1906	£310,000	243,227	181,454m	1	1	....	5% interim for 1907	Highlands & Lowds. Para Rub. Co., Ltd. *Fully paid*	....	2.0.0	£2 2s. 0d.
			123,546	1	10/-	....	....	" " " " *Contributory*	1.2.6	1.7.6	£1 7s. 6d.
1906	£180,000	£180,000	180,000	1	1	....	3% for 1906	Kuala Lumpur Rubber Co., Ltd.	....	1.5.6	£1 5s. 6d.
1907	£320,000	201,500	184,000e*	£1	£1	....	....	Lanadron Rubber Estates, Ltd.	....	....	nominal
			70,000	£1	5/-	....	....	" " "	9/-	9/3	9/3
1906	f. 175,000	f.146,250	80	f.250	250	....	....	Langen Rub. and Cocoanut Co., Ltd.	....	....	f.300.
			460	f.250	187.50	....	....	" " " " " "	....	200.00	f.200.00
			160	f.250	250	....	....	" " " " " *Deferred*	....	....	f.250.
1906	$250,000	225,000	22,500n	10	10	....	....	Ledbury Rubber Co., Ltd.	....	11.50	$11.50
1895	£100,000	76,100	900,000f*	2/-	2/-	....	10% interim for 1907	Linggi Plantations Ltd., *Ordinary*	8/6	9/6	9/6
			10,000	1	1	....	....	" " " *7% Pref.*	....	1.0.0	£1 0s. 0d.
1906	£300,000	260,625	115,000	1	1	....	7½% for year ending 31-12-07	Malacca Rubber Plantations 7½% *Pref.*	....	18/6	18/6
			140,000	1	1	....	....	" " Ordinary *Fully paid*	....	14/-	14/-
			45,000	1	2/6	....	....	" " *Contributory*	....	....	nominal.
1903	£30,000	20,000	20,000o	1	1	....	10% interim for 1907	Pataling Rubber Estates Synd. Ltd.	....	....	£7. 10s. 0d.
1906	$250,000	225,000	22,500c*	10	10	....	....	Ragalla Rubber Co., Ltd.	...	10.50	$10.50
1904	£20,000	8,794	2,588b*	1	1	....	....	Sagga Company Limited	....	....	£2. 10s. 0d.
			12,412	1	10/-	....	....	" " "	....	....	....
1904	$100,000	100,000	1,000	100	100	....	20% for year ending 31-1-07	Sandycroft Rubber Co., Ltd.	....	310.00	$310.00
1898	£30,000	28,150	263,000	2/-	2/-	....	25% interim for 1907	Selangor Rubber Co., Ltd.	....	....	15/-
			37,000	2/-	1/-	....	....	" "	....	....	nominal.
1903	$250,000	250,000	2,500	100	100	....	....	Sing. & Johore Rub. Co., Ltd. *Fully paid*	....	135.00	$135.00
1905	$100,000	100,000	10,000	10	10	....	7½% for year ending 30/6/07	Sione Rubber Co., Ltd.	....	13.50	$13.50
1906	£100,000	93,375	73,500	£1	£1	....	....	Sungei Kapar Rubber Co., Ltd.	....	....	nominal.
			26,500	£1	15/	....	....	" " " " "	....	....	£2 1s. 0d.
1904	£50,000	28,795	6,920p	1	1	....	....	Sungei Way (Selangor) Rub. Co., Ltd.	....	....	£2. 0s. 0d.
			35,000	1	12/-6	....	....	" " " *Contributory*	....	1.10.0	£1. 10s. 0d.
1904	£60,000	50,000	500,000q	2/-	2/-	....	55% for 1906	Vallambrosa Rubber Co., Ltd.	....	10/9	10/9
								GENERAL			
1894	£5,377.10.0	£4,805	7,688d*	12/6	12/6	£1,300	10% for year ending 31-12-06	Bells Asbestos Eastern Agency, Ltd.	5.00	6.75	$6.75
1898	$225,000	225,000	4,500	50	50	112,500	15% & 2½% bon. for yr. end. 31-12-06.	Fraser & Neave, Ltd	142.50	145.00	142.50
1865	$15,000,000	15,000,000	80,000	125	125	£1,500,000u 13,000,000v 250,000u	£2-0-0 for ½ year ending 31-12-07	Hongkong & Shanghai Bankg Corptn	....	....	£78 0s. 0d.
			40,000	125	125		£1 10s 0d for ½ year ending 31-12-07	" " " " new issue	....	....	£77 10s. 0d.
1905	$2,400,000	2,400,000	18,000	100	....	75,000	7½% for year ending 31-10-07	Howarth Erskine, Ltd	....	152.50	152.50
			6,000	100	....	....	7% for year ending 31-10-06	" " *7% Pref*	....	....	120.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-06	Katz Brothers, Ltd. *Deferred*	....	....	135.00
			4,000	100	100	....	8% " " " " "	" " *8% Cum. Pref*	....	....	nominal.
1901	$34,000	34,000	3,400	10	10	....	20% for year ending 31-10-07	Maynard & Co., Ltd	17.50	19.00	19.00
1899	$875,000	875,000	6,000	100	100	150,000	5% for year ending 31/12/06	Riley, Hargreaves & Co., Ltd	120.00	....	120.00
			2,750	100	100	....	7% for year ending 31/12/06	" " " " *7% Pref.*	115.00	....	115.00
1903	$600,000	240,000	24,000r	10	10	....	....	Singapore Cold Storage Co., Ltd	6.25	6.50	6.50
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-07	Singapore Dispensary Ltd	....	50.00	50.00
1903	£400,000	400,000	400,000g*	£1	£1	....	....	Singapore Electric Tramways, Co., Ltd.	....	6/3	6/3
1904	$160,000	112,000	1,120h*	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate Ltd.	....	65.00	65.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd	130.00	....	130.00
1890	$500,000	500,000	5,000	100	100	400,000 241,075x	5% interim during 1907	Straits Steam Ship Co., Ltd	200.00	....	200.00
1904	$40,000	$30,280	2,535s	10	8	....	....	Straits Tobacco Factory, Ltd	....	3.50	3.50
			1,000	10	10	....	....	" " " "	....	....	nominal.
1887	$3,000,000	3,000,000	300,000	10	10	1,150,000 1,187,084y	10% & 5% bon. ½ yr. end. 30-9-07	Straits Trading Co., Ltd	48.50	48.75	48.50

DEBENTURES

Name	Buyers	Sellers	Closing Quotations
Howarth Erskine, Ltd. 6% .... $ 600,000	....	....	3% prem.
Riley, Hargreaves & Co., Ld. 6% . 225,000	....	....	3% prem.
Singapore Electric Tramways, Co., Ltd. 5% 350,000	....	....	nominal
Singapore Municipal 6% 400,000	....	....	20% prem.
" " 5% 1,878,000	....	....	3% prem.
" " 4½% 1,600,000	....	5%	5% prem.
" " 4% 602,900	....	....	2% dis. nom.
Straits Engineering Synd. Ltd. 6% . 45,000	....	....	par.
Tanjong Pagar Dock Board 6% ... 250,000	....	....	3% prem.
" " " 5% .. 1,050,000	....	....	1% prem.

a 50,000 unissued
b 2,500 "
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
g 10,000 "
h { 100,000 " *Ord.* / 45,500 " *Pref.*
i 12,000 "
j 9,000 "
k 2,500 "

l 20,000 unissued.
m 5,000 "
n 2,500 "
o 10,000 "
p 8,080 "
q 100,000 "
r 36,000 "
s 465 "
t Special Gold Reserve Fund
u Silver Reserve Fund.
v Insurance Fund.
w Sundry Reserves.

x Sundry Reserves.
y 7,500 unissued.
z 20,000 "
a* 5,000 "
b* 2,500 "
c* 916 "
d* 239,000 "
e* 66,000 "
f* 480, "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, 19TH FEBRUARY, 1908

STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVE FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2800	-Y- 10	-Y- 10			31-12-06	8%	for 1 year	10 Sellers.
Club Hotel, Ltd.	185,000	1850	100	100	3,000	-Y- 943.52	31-3-07	10%	for ½ year	75 Sellers.
Grand Hotel, Ltd.	500,000	5000	100	100	10,000	-Y- 8,762.67	31-12-07	5%	for ½ year	100 Sellers.
Helm Bros., Ltd.	186,000	3720	50	50	25,000	-Y- 1,682.93	31-12-07	20%	for 1 year	85 Sellers.
Langfeldt & Co., Ltd.	150,000	1500	100	100		Dr. 14,115.95	31-12-07		for ½ year	45 Sales.
C. Nickel & Co., Ltd. †	500,000	20000	25	25		1,729.20	31-10-07	20%	for 1 year	42 Sales.
Yokohama Engine and Iron Works *	500,000	10000	50	50	50,000	-Y- 12,477.04	31-5-07	10%	for ½ year	80 Sellers.
Oriental Hotel, Ltd., Ordinary	250,000	3000	50	50	62,285.42		31-8-06	15%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference		2000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10000	100	100	3.259.65	1,774.45	30-9-07	7%	9 mos.	105 Sales.

† 285,000 unissued.

*-Y- 390,000 issued.

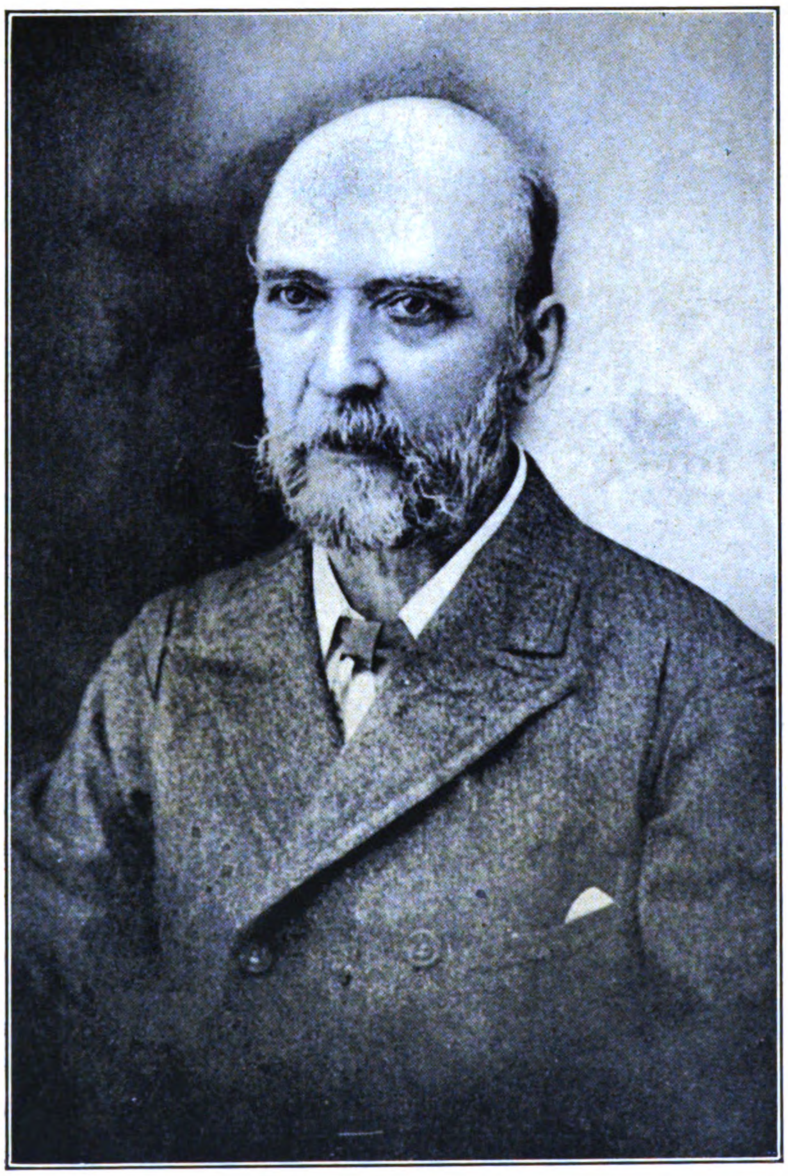
‡ 475,000 unissued.

110,000 unissued.

DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 98.00
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 93.70
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 93.70
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 84.00
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 84.00
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 83.20
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 84.10
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 96.70
Yokohama City Public Loan Bonds	100	100	6%	March and Sept	,, 97.50
Osaka Harbour Bonds	100	100	6%	June and Dec.	,, 92.50
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 94.00
Kawasaki Dock Yards Co.'s Debentures	100	100	6%	June and Dec.	,, 98.00
Tokyo Race Associations	500	500		June and Dec.	,, 800.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	8%	June and Dec.	,, 59.40
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 40.00
Keihin Electric Tranway Company, Limited	50	50	13%	June and Dec.	,, 73.50
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 28.00
Hanshin Electric Tranway Co., Ltd.	50	50	12%	May and Nov.	,, 90.45
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	22%	July and Jan.	,, 88.20
Fuji Gassed-Yarn Company, Limited	50	50	25%	July and Jan.	,, 85.00
Tokyo Cotton Spinning Company, Limited	50	50	18%	July and Jan.	,, 54.80
Imperial Hemp Weaving Company, Limited.	50	50	12%	July and Jan.	,, 55.50
Nisshin Boseki Kabushiki Kaisha	50	12½		——	,, 9.70
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	17½%	May and Nov.	,, 79.20
Ensuico Sugar Refinery Company, Limited	50	12½	18%	June and Dec.	,, 15.65
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 95.00
Kirin Brewery Company, Limited	50	50	8%	July and Jan.	,, 69.00
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 56.00
Uraga Dock Company, Limited	50	50	......	July and Jan.	,, 11.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 72.00
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 80.75
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 88.00
Miscellaneous					
Tokyo Electric Light Company, Limited	50	50	10%	June and Dec.	,, 68.00
Tokyo Gas Company, Limited	50	50	15%	July and Jan.	,, 85.00
Yokohama Union Electric Light Company, Limited	50	50	15%	July and Jan.	,, 75.00
Fuji Paper Mills	50	50	10%	June and Dec.	,, 45.00
Otaru Timber Company, Limited	50	50	15%	March and Sept.	,, 27.00
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 128.00
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 94.00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 46.00
Tokyo Stock Exchange Company	50	50	11%	June and Dec.	,, 99.00
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 102.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 86.00

Supplement to THE FAR EASTERN REVIEW,
April, Nineteen Hundred and Eight



(Reproduced from PACIFIC ERA)

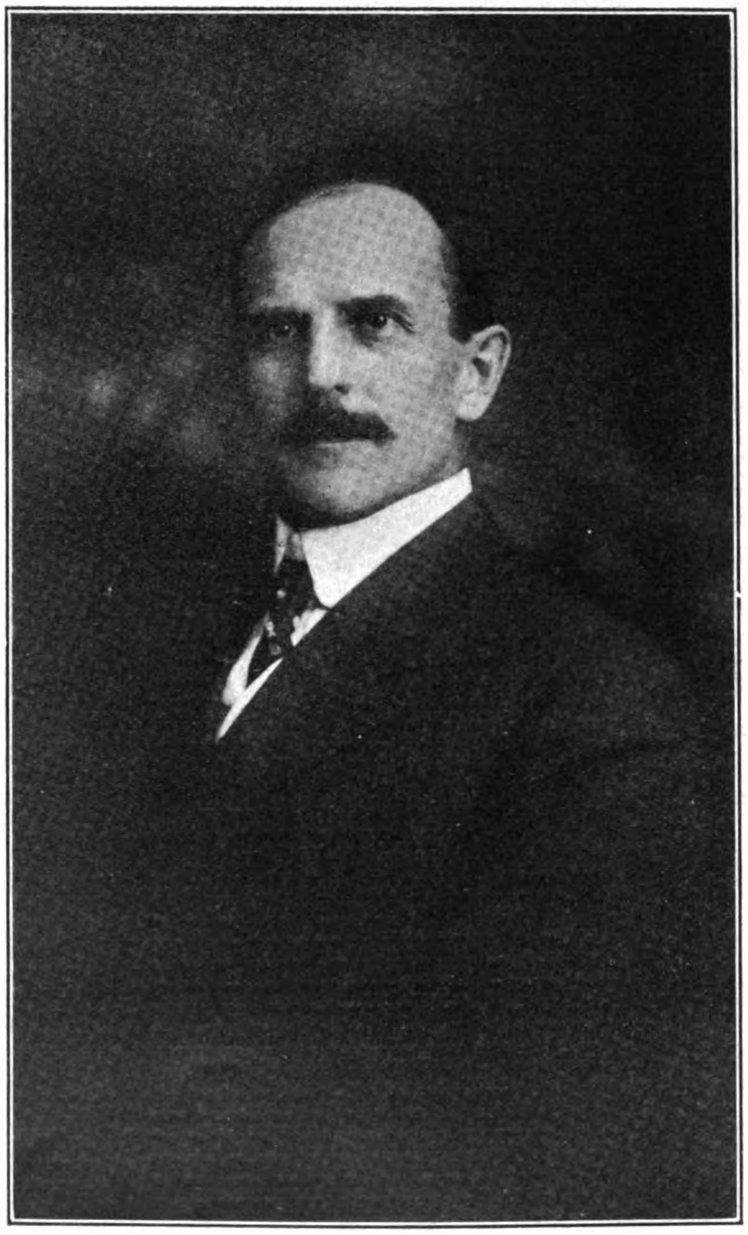
Sir Robert Hart, Bart.,

Inspector General, Chinese Imperial Maritime Customs

THE FAR EASTERN REVIEW

COMMERCE ◉ ENGINEERING ◉ FINANCE

VOL. IV. MANILA, P. I., SHANGHAI, AND YOKOHAMA, APRIL, 1908 No. 11.



Mr. JAMES W. BEARDSLEY

Director of the Bureau of Public Works, Philippine Islands

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

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SHANSI MINING DEVELOPMENT

That the people of Shansi have jumped out of the frying pan into the fire in the matter of developing the mineral resources of the province, by refusing to permit the Peking Syndicate to operate under its concession and forcing it to accept the sum of taels 2,750,000 for its rights rather than wait indefinitely for support from the central government, is now apparent. It will be remembered that the anti-foreign agitation has been at a white heat in Shansi province for some time and the provincial authorities refused to grant the Syndicate permission to acquire land and commence the development of its concession, although vague promises were made but never fulfilled, much to the disgust of the directors and the shareholders. The greatest degree of patience was exercised by the Syndicate and finally negotiations were opened with delegates from Shansi with the result that the province decided to purchase the concession and, in January, the deal was closed.

The presumption was that with the withdrawal of the Syndicate, Shansi capital would proceed at once to develop the deposits affected, but we find that there is less prospect than before of any progress being made in that direction. The Shansi people, so anxious to secure control of the property, are now protesting against paying the piper and while the Peking authorities have expressed approval of the proposal of the Shansi people to develop their mines, word has gone forth that the enterprise must be abandoned at this time. And so the mineral wealth that the Syndicate was so anxious to develop and by so doing bring an element of prosperity into the province, must perforce remain an unavailable asset. In this connection, the *Peking and Tientsin Times*, in endorsing the progressive spirit expressed by a grandson of Li Hungchang, says:

"That the people even under the most favorable circumstances are neither thrifty nor persevering enough to make the most of their opportunities is probable, but at least they should have the best possible chance and every encouragement. The situation in Shansi since the Syndicate's withdrawal shows very clearly the manner in which the people are handicapped, and a grievance is being already excited by the extra taxation which is being threatened, in order to pay the redemption fund. The first act of the officials was to prevent the people carrying out the enterprise on which they were supposed to be desirous of embarking, and nothing will, we fear, be done in Shansi for many years, splendid as is the mineral wealth of the province. The Government is said to have approved the suggestions made, and there the matter will probably end. Approval costs nothing and sounds well. Until the men like Li have their way in the country it is to be feared little real mining progress will be possible."

There is also the probability that the people of Shansi may yet appreciate foreign capital for development work and that even the Peking Syndicate may yet receive a welcome by the very people who have been led by agitators to attempt to drive it out of the province. And it is not improbable that the directors, with their intimate knowledge of conditions and characteristics of the natives, foresee the probability of just such a contingency. At least, in their annual report, the prospect of finding an opportunity of investment in Shansi is not abandoned. Discussing the surrender of the concession the board in its last report said:

"While agreeing, however, to surrender the Concession upon payment of the money stipulated for, the Directors have not abandoned all prospect of yet doing work in Shansi. It is part of the Agreement that if hereafter foreign capital is required for mining, iron smelting or transport of materials (meaning, presumably, railways), the Peking Syndicate shall have the first option. Ting Niehtai, in the course of the discussion, frequently urged on Mr. Brown that if the Syndicate would only be generous in giving up the Concession it would so conciliate the Shansi people that they would welcome the Syndicate's assistance in future developments, for which, he said—and said no doubt truly—the Shansi people themselves cannot provide either capital or skill. Without attaching too much importance to such assurances, the Directors consider the above stipulation of priority for the Syndicate a very valuable one, and it will be their endeavor as soon as possible to take advantage of it. The Syndicate has since the spring of 1905 had an Agent stationed at Ping-ting-chow, who has throughout maintained friendly relations with the local officials and people in spite of the agitation, and now that all antagonism has been removed it may be hoped that business propositions will come through the same channel."

However, the fear abroad in China that foreign capital for investment in development work would be so plentiful, if encouraged, to leave no opening for the exposition of Chinese capital and enterprise, is not founded on experience. In no instance where foreign capital has been encouraged, has its presence failed to widen the opportunities for profitable investment of Chinese capital and the exercise of Chinese enterprise and genius. For every dollar of foreign capital actively invested in the development of any industry in any section of China, ten additional Chinese dollars would be needed to keep pace in providing the development of complementary industries made necessary by new community interests.

We do not hesitate to express the belief that if the investment of capital from foreign countries were encouraged legitimately, that every dollar of Chinese capital available would be exhausted meeting the demand created in every branch of commercial enterprise by the opening up of industries now undeveloped in every section of the empire. Under present conditions, the provincial agitator is opposed to foreign investment and the Peking government has no confidence in the agitator. The people of Shansi are having experience. They continue to be misled and to have their interests sacrificed while the mineral wealth of the country remains in the ground, a useless subject for contention, instead of making a basis for an industry giving employment to thousands and prosperity to the sections affected.

TO UTILIZE THE TROPICAL SUN

We hear on all sides the complaint that life in the tropics is made unendurable by the terrible heat of the tropical Sun. There is good sound reason for this. The tropical sun is a menace unless those coming in contact with its rays have the proper respect for its recognized influence. But the prospect brightens when we learn that this planet may profit from the very characteristic that makes the center of light dangerous in the torrid zone. The harnessing of the Sun's rays to a liquid air producer is the ambition of an American inventor. The process is simple. That estimable journal, *Modern Mechanics*, that each month reads like a Jules Verne's serial, makes the following announcement:

"A Pennsylvania inventor believes he has solved the problem of converting the heat of the sun into motive power, in both a practical and economical way, through the medium of a hot-box constructed on the same principle as the hotbed used by florists and truckgrowers.

"A box, 60 ft. long and 18 ft. wide, constructed of wood, is placed in the ground. In it are laid coils of iron pipe painted black. The box is covered by two layers of ordinary hot-house glass, with a 1-in. air space between. The rays of the sun penetrate through the glass covering and their heat is absorbed by liquid ether in the pipes and generates the pressure which drives the engine. The inventor asserts that in tropical countries water can take the place of the ether used in this instance. The exhaust passes into a condenser after accomplishing its task and is then returned in its fluid state back to the hot-box.

"The great drawback is the fact that the sun shines only about 8 hours a day and that some days are cloudy. Therefore the inventor proposes to use solar power for liquefying air, which can be shipped and used for power.

"Plans are being made to construct solar plants in the tropics, where humidity is rare and sunlight abundant, to compress indefinite quantities of atmosphere and ship it in bulk.

"Liquid air has been used in England to run automobiles. The cost is about $1.20 per gallon

in bulk. By the aid of a solar plant the inventor believes he can manufacture liquid air so cheaply that it can be sold for a few cents a gallon."

WIND POWER GENERATING PLANT

The use of the windmill for power to supply electric lighting is discussed by *Chambers' Journal*. Just what success may attend the introduction of the windmill in the east for irrigating small areas or for lighting small towns is yet to be measured, but the *Journal's* comments will be of interest and follow:

"The old-fashioned four-armed windmill for the purpose of grinding corn has now become almost extinct in England, but the circular type of wind-engine is obtaining an extended use for the operation of small machines about a farm, and for the provision of private water supplies. A new use has also been found for this prime mover in the form of providing power for private electric lighting installations, and at least one successful example of this application of wind-power is in operation. The earliest attempt to use a windmill for this purpose was made by Mr. George Cadbury some 12 years ago; and although this plant was very badly proportioned, owing to the lack of experience, the lighting was on one occasion kept up for six weeks without a break. Excellent results have been obtained in a later installation by means of the knowledge gained from Mr. Cadbury's experiments, and a plant erected three years later for lighting a large mansion in Yorkshire has given the utmost satisfaction to the owner. In this instance a circular wind-engine 30ft. in diameter drives a suitable dynamo, the electric current generated being stored in a battery of accumulators until required. The plant is looked after by a gardener, who devotes about four hours a week to this duty, the windmill being left running for many hours at a time without any attention whatever."

NEW JAPANESE COMPANIES

The Governor of the Bank of Japan, in his speech delivered at the last general meeting of shareholders, said that the paid-up capital of companies new started or which had increased their organizations during 1907 totalled 200 million *yen*, approximately, says the *Japan Times*. We ourselves had previously estimated that the sum paid up between July 1906 and December 1907 aggregated 350 millions, but our figure was probably somewhat above the mark, for the Bank of Japan has the best machinery for obtaining information. Still, as the second half of 1906 was emphatically the busiest time of the boom, we may fairly reckon that fully 100 millions was paid up during that time on account of new and old companies. The greatest period of similar growth in previous times was in the year 1897, when the paid-up capital of companies grew from 397 millions to 532 millions, an increase of 135 millions in one year. Thenceforth the rate of progress was comparatively slow, namely, 89 millions in 1898; 62 millions in 1899; 96 millions in 1900; 50 millions in 1901; 49 millions in 1902; 9 millions in 1903; 44 millions in 1904; and 44 millions in 1905. The figures for 1906 are not yet available. Taking the estimate of the Governor of the Bank of Japan, it would appear that 1907 with its 200 millions was the year of greatest enterprise in the past decade, 1897 coming next with 135 millions, and 1903 standing at the bottom with only 9 millions. It is easy to account for the remarkably bad record in 1903; the terrible war cloud then hanging on the horizon was enough to chill the spirit of enterprise. But we find it quite remarkable that in spite of the great depression which existed in the money market during 1907, an amount of capital considerably in excess of the *post bellum* figure in 1897 should have been paid up. Until accurate statistics with regard to 1906 are published, it will not be possible to know what total sum of money was affected by the recent boom, but on the whole it will probably be found that there has not been any excessive strain upon the country's capital fund, especially when we remember the great sums of money which came into the people's hands during the war.

INNOVATIONS IN STREET PAVING

Hand steel slag for macadamizing instead of stone has been introduced successfully at Cortland, N. Y., according to the *Municipal Engineer*. That journal also refers to the Durax Dustless System of German origin and says:

"Cortland, N. Y., has paved many of her streets with macadam, for which is used, instead of stone, 'hard steel' slag given to the city by a local steel mill. This slag is much harder than trap rock, and at first much difficulty was experienced in causing it to bind properly, but clayey loam seems to effect this, being added dry in some cases, in others flushed in wet. This macadam costs about 50 cents a square yard. The surface is finished with limestone screenings. Most roadways are 26 feet wide and furnished with 18-inch concrete gutter and 6 inch concrete curb.

"A German system of paving, being introduced into England, also, under the name of Durax Dustless System, is said to be free from dust and mud and have the resiliency of rubber paving. The surface consists of 4-inch cubes of stone, cut and faced by machinery so true as to leave no interstices when set. These stones are set by skilled labor like mosaic and arranged in intersecting curves, so that the joints are broken as much as possible, this method of laying constituting one of the most important features of the system. Any small interstices are grouted with sharp sand. The stones are then settled by heavy rammers and a perfectly smooth surface obtained, yet said to give an excellent foothold. The foundation may be concrete or old macadam. If the latter, the macadam is removed to a little more than four inches below the finished grade, rolled and leveled. A thick cushion layer of sand is spread on the foundation. The total cost (presumably exclusive of foundation) is said to be about $1.75 per square yard."

PROTECTION OF TRADE MARKS IN JAPAN

The agitation against the infringement of foreign trade marks in Japan, against which there seems to be no provision, and until very lately, apparently less regard, is having some result. The promoters of the 1912 exposition are commencing to realize that unless ample protection is provided for the protection of the trade marks of the goods sent for exhibit, foreign manufacturers shall refuse to participate and the result would spell disaster. Recently the *Japan Chronicle* called attention in its columns to the extensive and flagrant infringement of foreign trade marks in Japan and pointed out the disastrous moral effect of such laxity upon Japan's national commercial reputation. An echo of continual protests by foreign firms and the foreign press throughout the east has been found in the reflections cast on the methods of Japanese manufacturers as a whole, rather than upon the offending section. The resentment passed the point where it might be controlled and suspicion now marks the attitude of the foreign manufacturer towards Japan.

Heretofore, the Japanese government either failed to realize the enormity of the offence or was misled by official reports condoning or minimizing the extent of these practices and it was not until attention was called to the international obliquity through diplomatic channels, that any evidence of interest in correcting the evil developed Now, however, when it becomes necessary to the success of the exposition in 1912 that the trade marks of foreign houses be protected, the Japanese government is awakening to her responsibilities and some attempt at regulation is being made in the legislative halls of the nation. On February 17th, a bill providing a remedy against piracy, as affecting the exhibits to the exposition, by registration at the Bureau of Patents by the exhibitor of his trade marks. This bill will no doubt be enacted, but at best it is only a temporary measure and offers no assurance that more effective legislation may be expected at an early date. What influence is at work corrupting the national mind does not appear, but there does seem need of moral regeneration in commercial life before confidence is restored in this regard. Friends of Japan are not optimistic as to the outcome unless action providing permanent protection is taken at once.

Nowhere, perhaps, is this piratical tendency more greatly deplored than among the great representative houses of Japan that have been built up along lines conforming to the highest western commercial standards, but it would seem that even this extensive and healthy moral force is not sufficiently formidable to cope with the Japanese politician supported by the element that thrives on trade mark piracy and other questionable practices to the detriment of the good name of Nippon.

THE JAPANESE YARN LOTTERY

The latest sensation in commercial circles in the Far East developed when it was announced that the Japan Cotton Spinners' Association had inaugurated a lottery in connection with, and for the purpose of, extending its operations in China. A ticket representing a chance to win a premium in the form of more cotton yarn was concealed in each bale of the product and the association expected an increased sale as a result of the gambling feature involved.

The report of the officials of the association for the first week, according to a Japanese paper, indicated that the scheme was then working satisfactorily and that by the end of March the month's export to China would be three times as great as in the corresponding month, the year previous. This according to the *Asaji* is not due to the lottery scheme but to speculation and the desire to relieve the glutted Japanese market.

On St. Patrick's Day, the *North China Daily News* received a cablegram from its correspondent at Tokio to the effect that the association had decided that the lottery was impracticable and that the spinners proposed to reduce the output in order to relieve the congestion in the market.

In the meantime, Shanghai's municipal council took action. At a meeting of the city fathers a resolution was adopted indicating that any attempt to sell bales of cotton containing lottery tickets would be interpreted as a breach of the regulations prohibiting the sale of lottery tickets in Shanghai and directed the police to enforce the ordinance in this regard.

It is expected that the lottery methods will be fought bitterly by the manufacturers who confine their efforts to legitimate trade and it is believed that, in the end, the Japan Association will lose prestige in that the future success of Japanese yarn in the Chinese market would be measured by the gambling attractions rather than by the quality of the product and it must be remembered that the gambler's appetite is hard to satiate when once encouraged.

The legitimate yarn trade in our opinion will not suffer in the long run by competition with the promoters of gambling devices. The manufacture and sale of yarn requires more than the element of chance to attain success and we are of the opinion that the consumer is not disposed to accept a lottery ticket, concealed in a bale of cotton as evidence of the superior quality of the product.

Tenders for the delivery of 6 roadrollers of ten tons each have been advertised for by the bureau of supply, Manila, bids to be opened April 13, 1908. The government also reserves the right to purchase any number up to 12 rollers.

SIR ROBERT HART, BART., THE GREAT I. G.

By the Hon. EDWIN DANBY in the PACIFIC ERA

"One day in March, 1887, the writer, then a boy of seventeen, called upon Sir Robert Hart, Inspector General of Customs, to ask for an appointment in the service. The great I. G. stood, as was his custom, at a high desk in a bleak little office, unadorned save with a few Chinese scrolls upon the walls. He was enwrapped in a blanket bound about him with a leather strap, which he was accustomed to wear during the cold winters of Peking when at work. Application for appointment to the service was duly made. Sir Robert said: 'Don't do it; don't bury yourself in China; it is not necessary for you Americans to leave your country and build up careers abroad. We of Great Britain have to; our Islands are too small to hold us all, but you have a great, wonderful country. Go home, go to college, and help build up your own United States, and make a career there.'

"With the frankness of boyhood, I assured Sir Robert that I had no intention of remaining permanently in China, but would retire after my first septennial period of service, and stay at home. Sir Robert said very sadly: 'Ah, no you won't! Many men who come to China think they will go home; home is always a dream, but hardly ever does a man give up service here. There is something in this service that chains us to our tasks. I have known men to resign three times, but always come back again, and take up the old work. If you stay seven years in China, you will live your life here, as I have done;—and often, in spite of the great success that I have had, and the good I think I have accomplished, I regret, deeply regret, that I did not make my career among my own people, in my own land.'

"Three months later, I became fourth assistant in the Customs Service.

"Recent press dispatches announce the proposed withdrawal of Sir Robert Hart from the Inspector Generalship of the Chinese Imperial Maritime Customs Service, and the appointment in his place of Sir Robert E. Bredon. When that proposed change goes into effect, it will mark the close of the active career of one of the most remarkable men that Great Britain has produced in the last half century. It was fitting that the land of Clive and Hastings should give to the world its greatest Asiatic administrator, and it is a characteristic of the changed era in which he lived that Sir Robert's power should have been based upon moral force and exercised with benign kindness. The closing of such a career can only be viewed with regret by the world at large, and with the tenderest interest by the great body of men who have been at various times in the Customs Service in China. During the writer's service in the Customs, he was brought into intimate contact with Sir Robert, and felt for him not alone the respect due to a great superior, but the affection and high regard only given to noble qualities and great ability.

"Sir Robert Hart's connection with the Chinese Imperial Maritime Service began in June 1859 under Horatio N. Lay, Inspector General. Lay was charged with having exceeded his authority in the purchase of a considerable fleet of war vessels from Great Britain, known in Anglo-Chinese history as the Lay-Osborne flotilla. The government repudiated the purchase, and finally England took back the fleet. But Lay's power was broken. In '63 Sir Robert, then Mr. Hart, became Inspector General of the Customs, a service which was then in its infancy, giving no promise of the magnificent development that occurred at a later date.

"A word or two to the *raison d'être* of this remarkable anomaly in international affairs may not be out of place. It sprang from the abysmal mire of the Tai Ping Rebellion which devastated Southern and Central China in the decade prior to 1860. In '54 during the disorders consequent upon the destroying march of the rebels toward Peking, a band of Chinese desperadoes seized the native city of Shanghai. This was before the American, Frederick G. Ward, organizer of the Ever Victorious Army, subsequently made so famous by Charles George Gordon, had commenced his campaign. The native authorities of Shanghai fled in terror. The native custom house was deserted. Vessels entered and cleared without paying duty. Disorder piled upon disorder, until finally a handful of foreigners, resident at Shanghai, took matters into their own hands. The three consuls of England, France and America constituted themselves into a kind of unofficial custom house, to receive notes for the payment of duty, and to issue papers to vessels entering and leaving the port. This system worked badly, and its duration was brief. It was followed by the appointment by the Chinese government, of three foreigners to administer the service at the port of Shanghai under the authority of Peking. Their duties were so well performed and their administration so economical, that it made instant appeal to the authorities at Peking, and the plan then tentatively inaugurated was formally adopted for the collection of duties on foreign commerce. Thus was born, at the time of internal distress, when the Manchu dynasty tottered upon its throne, that great service that was to prove its strong support in later years.

Reproduced from PACIFIC ERA

SIR ROBERT HART,
About Twenty Years Ago

"And then came the opportunity for Sir Robert Hart, then student interpreter in the British Consular Service, to win immortality in the history of Britain and of China. He quickly demonstrated his tact, his courage, and his high intelligence, and it was but a step to the position of chief power in the new service.

"How like a romance the record reads,—one of those romances that have in the past so often been given to the world by the sons of the British Isles! Out of this baby service, contemptuously referred to on one occasion as the "consul's bantling" there came a service so powerful that upon it alone rested the credit of China abroad; a service attacked in vain by reactionaries, and supported no less by the genius of Sir Robert Hart than by the bayonets of the powers. For nearly fifty years Sir Robert was the chief advisor to the throne. He had unlimited power in the administration of his own department. He had the supreme confidence of his nominal masters, the Princes and Ministers of the Board of Foreign Affairs. It is related that once Sir Robert was sent for by the Board, and informed that an American firm of strength and integrity had offered to administer the Customs Service for one-half what it was costing the government. The proposition was laid before him without comment. In reply he said it was fortunate it should have come up at that time, since he intended to ask a large increase in the funds granted for the service. Practically without further discussion the American offer was declined, and Sir Robert's request allowed.

"Upon another occasion the government placed wholly in his hands the making of the peace with France, and he negotiated directly by cable with the French foreign office, over the heads of diplomatic intermediaries, and peace was made at a cost of 80,000 taels in cable charges.

"At this date the service has grown until there are four immense Departments: the Revenue Department for the collection of duties, numbering 1,151 foreigners and 4,480 Chinese employees; the Marine Department, having charge of harbors, lights, etc.; the Educational Department, administering the T'ung Wen Kwan, and the Postal Department, a total staff, foreign and Chinese, of 11,980 men. Over this service until very recently, Sir Robert Hart has been absolute master. Promotions, dismissals, appointments,—all were in his hands; yet so well has he administered the service, and so free has it been from favoritism or the bitter ills that so often accompany autocracy, that rarely is anyone heard to question the justice and the good faith of the great Inspector General. Were he to attempt to wear the medals and decorations that have been conferred upon him by almost every government upon earth, his entire wardrobe would scarce accommodate the glittering collection. England made him successively Commander of the Order of St. Michael and St. George, Knight Commander and Grand Commander of the same Order, and finally a Baronet. In 1885 England appointed him her Envoy Extraordinary and Minister Plenipotentiary to the Emperor of China, but he did not take up the appointment, and remained in the Customs Service as Inspector General. China has conferred upon him titles without number; buttons and feathers and dragons, and has in addition conferred ancestral rank of the first order for three generations upon his ancestors.

"Some day we shall know, and history will record, how much the world owes to this kindly, unassuming, music-loving, tender-hearted Irishman, who saved a throne and kept together the apparently disintegrating mass of the Chinese people, until the day dawn of progress and modernization; who gave a superb object lesson to the nations of Asia in the integrity, faithful devotion to duty, and loyalty of the best type of foreigner to his employer. Through all the decades of the last half century, the Customs Service has been the one green spot in the desert waste of Chinese mal-administration and corruption."

TRIAL TRIP OF THE CLUTHA X

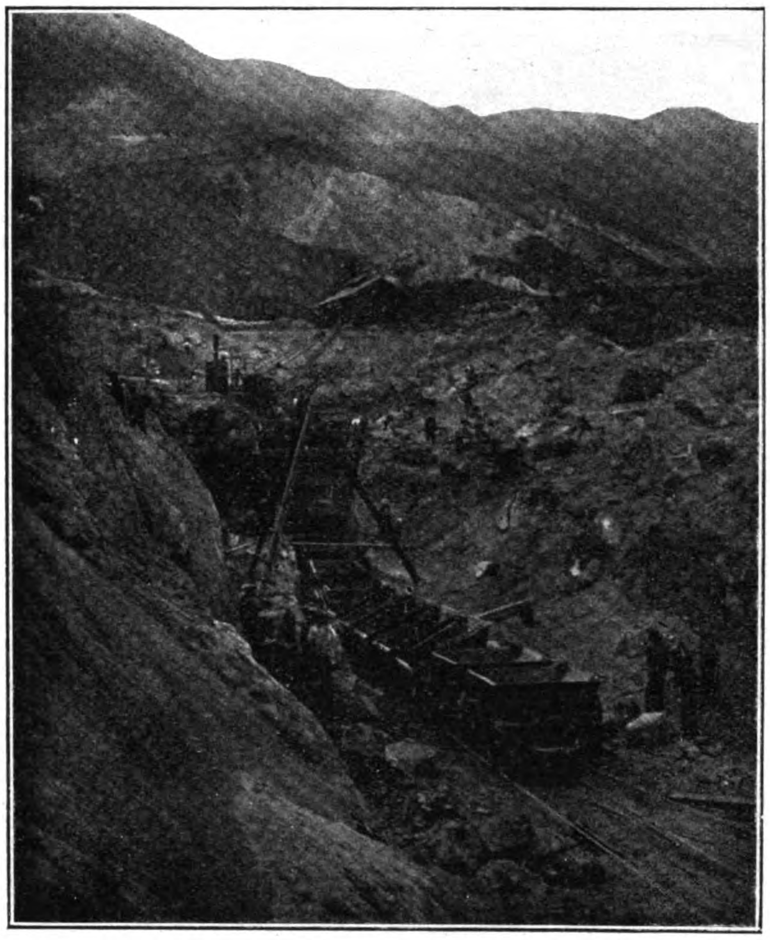
The new ferry boat, Clutha X, built by the Shanghai Dock and Engineering Company for the Shanghai and Hongkew Wharf Company, Limited, for the transportation of passengers between Shanghai and Pootung, made a successful trial trip as far as the Seven Mile Reach, March 16, making an average under test of 10.2 knots over the measured mile. One measured mile was made in 5 minutes 3 seconds or about 12 knots with the tide.

The vessel is 90 feet in length, 95 feet over all, beam 18 feet, and depth 9 feet. It was built after the design of the ferry boats operating on the Clyde and has a carrying capacity of 435 passengers On the forward deck a small cabin is provided for foreign passengers, finished in teak and white and gold effect and fitted with upholstered seats. Below are two large cabins for Chinese passengers while the quarters for the crew are comfortable and well ventilated.

It is equipped with engines of the compound condensing type with 9" and 18" cylinders and 18" stroke. In addition to a complete set of life saving apparatus, the vessel is equipped with a powerful fire pump for use in the harbor and in this regard will prove a valuable auxiliary to the present squadron of fire floats maintained.

THE HONGKONG—CANTON RAILWAY

The report of Mr. G. W. Eves, Chief Resident Engineer of the Hongkong-Canton Railway construction, on the progress of the work up to December 31st, 1907, concludes with the announcement that barring accident and unexpected delays the line would be completed by December 1909, so far as the contract work was involved and the line should be open for traffic by the end of May 1910. The importance of this terminal section of the line from Peking cannot as yet be estimated and from a review of the Resident Engineer's report and the generous support given the project by Hongkong there is every reason to believe that no delay will be occasioned. Some idea of the engineering problems involved in the construction of this may be gathered from the Resident Engineer's report a copy of which follows:



THE KOWLOON-CANTON TUNNEL ENTRANCE—COMMENCEMENT OF BORING OPERATIONS

Description of Alignment.—The present alignment is slightly different from that set out by Mr. Bruce. In Kowloon Station Yard, the line has been kept further West nearer Des Vœux Road. At Chain 3,800 Des Vœux and Gascoigne Roads are carried over the line by a very large Bridge.

After passing this Bridge, the grade rises at 1 in 150 to Chain 8.600, near which the line passes over a proposed 100ft. road by a 60ft. Girder Bridge, with 2 side spans of 10 feet Arches for the Pathways.

At Chain 9.700 another 100ft. road (Argyle Street) is crossed by a 60ft. Girder Bridge. As close as possible to this Road, I propose to put a Station for Yaumati.

Passing through a short tunnel, the line crosses another 100ft. road by a 60ft. Span Girder. This is the third Bridge which the Public Works Department have asked the Railway to build, for which there is at present no road except such as is marked on a Map as "Proposed."

After crossing this road, the grade rises at 1 in 100 towards the hills and at Chain 17.500 enters Beacon Hill Tunnel. There is a short length of level in the centre of the tunnel, Chain 20.700 to 21.300, and the line falls at 1 in 400 to the North Portal at Chain 24.700 where the grade changes to 1 in 100. Near this point, the line crosses the valley on a bridge consisting of three 40 ft. Girders, and runs down the North side to Tai Wai Village where there is a bridge of four 30 ft. Arches over the Shing Mun River.

From this river, the alignment has been completely altered. Instead of continuing on and keeping to the sea side of the road, the line curves to the East and crosses the Taipo Road by a level crossing at Chain 33.600. Shatin Station is placed at Chain 35.000 and at a reduced level of 214.00 which ought to keep the formation dry during typhoons at this point.

Beyond Shatin Station, the coastline gets very rugged and indented with deep bays. It was found impossible to get a line at a low level here without having either very deep cuttings through the spurs or else running the line too far into the sea. For this reason, the grade rises at 1 in 500 and 1 in 1,000 till a height of 230.00 is reached.

Between Chain 43.200, and 44.200, the Taipo Road is diverted to the sea side of the line, as the Railway is too high above the road for level crossings. At Chain 45.300 the road passes under the Railway. Shortly after this, the road rises rapidly and between Chains 45.850 and 46.200 and 46.950 and 47.200 is diverted and kept on the West side of the line by being scarped out of the cutting above the Railway.

Between Chains 48.100 and 48.450 is a short tunnel, the road going round the spur is carried over the tunnel Portals at both sides.

At Chain 49.500 on Mr. Bruce's alignment, there was marked a viaduct of 20 spans of 20 feet in rather deep water. In order to avoid this, the new line goes more inland and passes in rather deep cutting through the West side of a hill at Chain 50.400. The line comes out on to the coastline again and is in heavy scarp cutting for some time, with a short tunnel between Chains 51.475 and 51.625.

The grade runs down then past the village of Cheung Sui Tan and rises again approaching the Taipo tunnel. This tunnel between Chains 62.625 and 63.475 avoids a sharp curve round a very exposed spur to the South of Taipo Station Yard. Going through the spur, instead of round it, allows the line to cross the next bay much nearer the shore and avoids a good deal of bridging in deep water.

Taipo Station Yard is in the same position as Mr. Bruce placed it, but I have raised the level 2 feet to 220.00.

Beyond Taipo, the line deviates very much from Mr. Bruce's alignment for the first few miles.

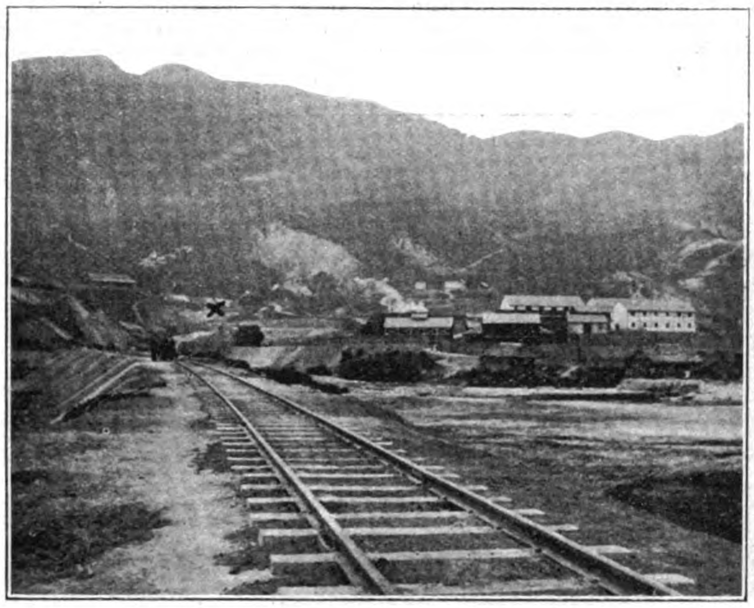
The original alignment was very far out in the sea enclosing large tidal areas. The bridges necessary for letting the water out would all have to be founded on wells which would have been very costly requiring a large amount of plant. The new alignment runs right inland after leaving Taipo Station, passing to the West of Taipo Market. The line then gets back on the old alignment for a few chains

and then leaves it again to avoid a 6° curve on a 1 in 100 grade.

Fan Ling Station is reached at Chain 96.000 and the frontier at Chain 113.000.

Note.—The various levels quoted are referred to a datum 200 feet below Ordnance Datum.

SURVEY.—All expenditure under this heading has been completed. The difference between



VIEW AT KOWLOON END OF TUNNEL SHOWING WORKING PLANT—TUNNEL ENTRANCE INDICATED BY X

the Actual and Estimated Expenditure represents a saving on the Total Estimate.

LAND.—Outside Kowloon all the land has been bought with the exception of some lots near the site of Shatin Station.

FORMATION EARTHWORK.—Any quantities and amounts I might give to show progress under this sub-head would be very deceptive. The total expenditure up to the end of 1907 was under ¼ of the total estimate for the line but about ½ of the total quantity of earthwork has been done. This is owing to the fact that the commencement of all earthwork cuttings, &c., is generally the easiest and the quickest done because the material is soft and therefore more cheaply excavated, while the interior is generally composed of rock which besides being harder to excavate has to be led out a longer distance before it is in its final position in the bank.

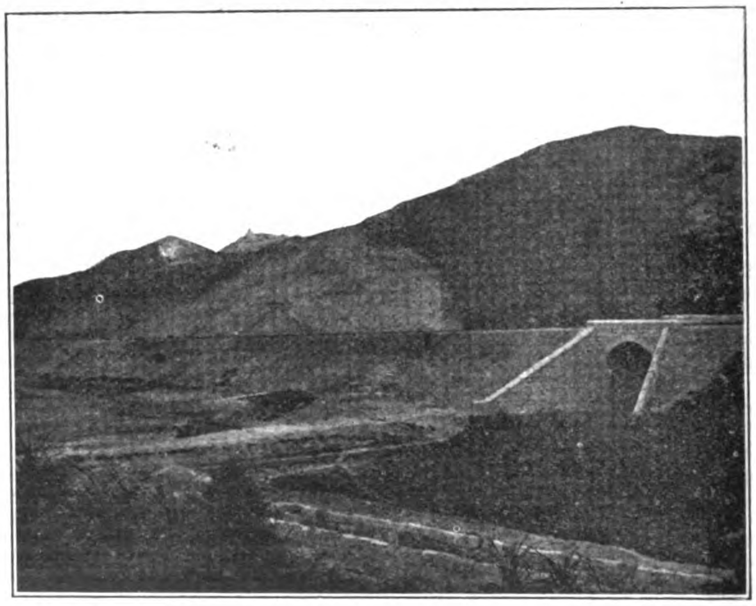
The Departmental System of carrying out works does not lend itself to easily estimating the future expenditure to complete the work because all work is done by petty contracts on a schedule of rates. The rates are graduated to suit the varying nature of the work and unless costly borings were taken which would also take some considerable time it would be impossible to make anything like an estimate of the amount of money required to complete the earthwork on the line. These borings if taken would not assist the Engineers in any way in carrying out work under this Departmental System.

The Estimate of Expenditure during 1908 must therefore be regarded as approximate only but it should be sufficient to complete all Earthwork Banks and Cuttings with the exception of the Reclamation in Kowloon Station Yard, a big bank in Shatin Valley and also another near Taipo. If all goes as at present I think there may be a saving of about 10 per cent or say $250,000.00 under this sub-head.

FORMATION TUNNELS.—The progress of the work under this sub head is not quite as much as was expected. This is due to the unexpected difficulties met with in the nature of the material through which the long tunnel under Beacon Hill is being driven, and also to the fact that great delays were experienced at home in getting delivery of the plant required for working the tunnel owing to the workshops generally being very full up of orders.

There are five tunnels on the line but four of these can be neglected as far as expenditure and progress during 1907 is concerned.

On a large tunnel as compared with earthwork the reverse is the case as regards expenditure and progress during the first year of construction. In the case of a long tunnel a very large amount of material and plant has to be collected and erected before a proper start can be made. This increases the expenditure per lineal foot of tunnel during the first year and it would not be right to multiply out the completion of the tunnel at the same rates as the first lengths.



EMBANKMENT APPROACHING KOWLOON END OF THE TUNNEL

Up to the end of 1907 the following had been done at Beacon Hill Tunnel:—

SOUTH SIDE.—The heading had been driven 1,075 feet from the face, and a shaft sunk about 90 ft. deep. This shaft is now thrown out of use but its construction added greatly to the length of heading driven. 345 ft. of heading had been widened and fully lined.

NORTH SIDE.—The heading from the open was driven 952 ft. during the year. It was started during the 1st week in January 1907. A shaft was also sunk 270 ft. between January 3rd and October 24th and 115 feet of heading driven towards the South and 100 ft. towards the North. These headings are in extremely hard compact rock which I hope will not require any lining of brickwork. On 31st December there was 120 ft. of lining completed.

The plant at both sides is similar. There has been erected a complete double set of Electric Lighting Dynamos and also a double set of air compressors for driving the rock drills. These compressors are at present used for ventilating as well as driving the drills, a triplicate set of compressors are on order for ventilating when the headings get further into the hill. A great part of the expenditure up to date on the tunnel has been for the erection of this plant and the housing of the staff which will not I hope occur this year

Hardly ⅓ of the heading has been completed and the cost per lineal foot is slightly in excess of the estimate and about 1-15 of the widening has been executed. This widening is costing considerably more than the estimate and may result in an excess of $300,000 being required. This is due to the large amount of explosives required and the cost of the labor generally being under-estimated in the first instance through unforeseen difficulties.

As regards brick-lining it is difficult to say how the estimate will work out. One thousand feet was estimated as requiring to be fully lined at each end. This will be exceeded at the South side as the decomposed granite is extending much deeper into the hill at this side than was expected. At the North side the rock got harder and compact much more quickly and the distance estimated to be fully lined will not be exceeded. The balance of the tunnel was estimated as requiring only an arch overhead to keep chips of stone from shaking out and falling on passing trains. Part of the tunnel will not require even this so there may be a saving in the lining.

A very large amount of material is at site in the shape of bricks and timber which makes the figures for expenditure look large compared with the progress, and makes diagrams and figures very deceptive

The minor tunnels will all be built within the estimate. The expenditure during the past year chiefly consisted of the cost of materials at the site of works.

FORMATION ROADS.—No expenditure was undertaken under this sub-head.

BRIDGES—MAJOR.—About ½ the estimated expenditure has been expended on the large Bridges. Of these 18 Bridges work has started on all except about 3 as regards at least collecting of material. Four are complete with the exception of the Ironwork and 3 Arched Bridges are practically keyed in and about half finished. The rest are well in hand. I would consider there will be a saving of about $50,000 under this head but it is difficult to say as all the foundations are not in as yet.

BRIDGES—MINOR.—About ¼ of the estimated expenditure on this sub-head has been incurred and I consider a good deal more than ¼ of the work has been finished. Rather a larger number of Minor Bridges have to be built than was at first expected. Owing to the complicated systems of irrigation in the New Territories the water could not be collected and run through one opening but had to be split up into several minor bridges and culverts. There will be over 30 minor bridges when the Railway is complete and of these seven have been absolutely completed with a saving of about 10% on the estimate. Work is well in hand on the other bridges and there is no reason why the saving on these should not be at least 10% or about $50,000.00.

BRIDGE CULVERTS.—The expenditure on these is keeping well within the estimate though the number is rather in excess of that estimated for. These culverts are as a rule made only for single line owing to there being no difficulty in lengthening them when the line requires doubling.

The decrease in expenditure during 1907 in the Main Head of Bridges was owing to the fact that the Survey took rather longer than was expected and as there was no reason for picking up lost time, no extra rates were given to hurry up the work.

TRACK BALLAST.—Not much work was done under this heading during 1907 owing to the high rates asked by the Chinese contractors. As there was no object in collecting ballast at this early stage no large contracts were let. A large amount has been put down for 1908 but it is hoped this amount will not be required. The rates are falling gradually and it is probable that this will be done for the estimated amount.

TRACK, PERMANENT WAY.—The unforeseen expenditure during 1907 under this sub-head was for rails and sleepers for the reclamation of Kowloon Station Yard. It was decided to use the permanent rails and sleepers for this work as the use of narrow gauge rails and sleepers similar to what is in use at the Tunnel would flood the Colony with such a large amount of this material that it would be difficult to get rid of it at the completion of the work. This expenditure was for material only.

PLANT.—Under this heading the increase of expenditure was owing to Broad-gauge Engines, &c., being required for the reclamation in Kowloon Station Yard. These Engines will form part of the permanent equipment of the line. No permanent increase is foreseen.

GENERAL CHARGES.—The increase here is due to a large original under-estimate and to the difficulties of the line rendering it necessary to increase the superior grade of the Supervising Staff.

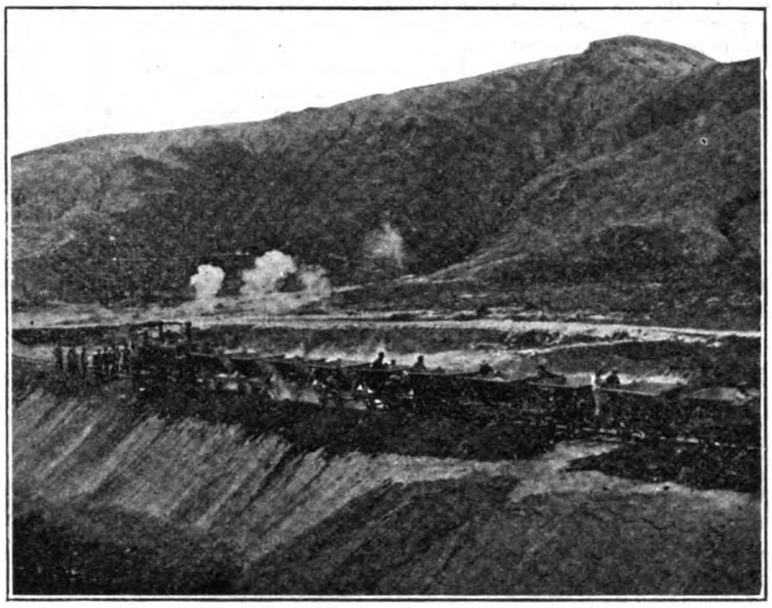
GENERAL PROGRESS.—There are two large works on which depend the final completion of the line:—

(a.) Beacon Hill Tunnel.

(b.) Excavation of Cutting No. 1 which is to form the reclamation for Kowloon Station Yard.

Beacon Hill Tunnel has always been considered the ruling factor as regards the final opening of the line for traffic. At the end of December the heading going North from the South side and that going South from the shaft at the North side were 4,914 feet apart which would meet at the end of November 1909 if the present average can be kept up. Six or seven mouths at least would be required to widen out and lay the rails ready for opening for traffic, say the end of May, 1910.

The reclamation of Kowloon Station Yard with material taken from cutting No. 1 is however taking longer than might be expected and I trust that the completion of the whole line may not be delayed by any failure on the part of the contractors to finish their contract within the specified time, viz., December, 1909.



EMBANKMENT CONSTRUCTION BETWEEN KOWLOON AND THE TUNNEL ON THE HONGKONG-CANTON RAILROAD

The following comment by the *China Mail* is an indication of the interest manifested in Hongkong in the opening up of this new avenue of commerce, and refers specifically to the benefit to be derived by the New Territory by the completion and operation of this line. *The Mail* says:

"The question of whether the New Territory is ever going to pay the Government of Hongkong as an investment is one that has puzzled thoughtful residents for a long time. At the present moment it is unprofitable, no matter how picturesque it might appear upon the map of South China as a tinge of red against the yellow. The hope is, however, that the railway that is now being pushed through the red hills at our immediate front will spread the population and open up any resources that the country possesses. The platitude oft expressed is that with the introduction of railways any country must necessarily flourish, that a stream of commerce is opened up where commerce was unknown before.

"We have always hoped that such would be the case in our possession across the water, and the hope has been more or less backed up by the knowledge that Chinese are likely to develop the agricultural resources of the country once transportation to this market is made easy, whilst whatever latent wealth lies in the ground will come under the notice of financiers who are ever ready to plant an industry where profits are a prospect.

"Whilst it must not be forgotten that the New Territory was taken over by the British Government solely for its military value in regard to Hongkong it may yet have a commercial and industrial importance that will be sufficient reward to the Colony of Hongkong for the money lavished upon its upkeep in the time when revenue returns were not of any substantial value. The greatest factor towards this desirable consummation is undoubtedly the railway, and whilst residents know that something is being done on the Kowloon side in the way of laying down a line, few have any conception of the work that has actually been completed during the past six months. Could a bird's eye view of the territory be taken a remarkable change would be observable in nature's surface. Through the gaunt red hills men are fighting their way with pick and shovel, with crowbar and dynamite. From Father Neptune the artificer and the coolie and the four-man shovel and the little train are claiming something for the convenience, the comfort and the use of future peoples.

"The sea in Hunghom Bay is being made to give up its own, and gradually a force more powerful than the bosom of Mrs. Partington is forcing back the blue waters of the harbor to make room for better things. The reclamation work for the railway station and shunting yard site is proceeding apace. What six months ago was a damp sea bed and an unoccupied tract of shore where dirty junks were cleaned with fire and the sampan people spread out their belongings on wash days, now constitutes a scene of rare activity. Every day sees a couple of puffing engines dragging truck loads of earth from away in the red hills and emptying them into the sea. Railway lines have been laid, engine sheds have been erected, offices have been built for the staff and altogether the whole of the appurtenances necessary to carry on such a work as the building of a line and the establishment of a railway station which will one day be the other end of a stretch of gleaming girdle linking the furthest cities on the hemisphere, are established or in course of preparation.

"The remote importance of this line is what appeals when the imagination is allowed a little freedom, and the vast possibilities stir the being with a thrill upon contemplation of the temerity and powers of man when pitted against nature. However philosophy has to be left out of the question for the moment. What we have to do is to congratulate those who are responsible for the rapidity with which the first section of the Kowloon-Canton Railway are doing their part. From Hunghom Bay to the big tunnel through the main range work has been done during the last six months that has transformed the face of things. Great hills of rotting granite have been tackled by comparatively puny coolies and the mountains have suffered. Three miles of line have to ultimately be constructed and cuttings and bridges, nullahs and tunnels made. This means the removal of some million and a half cubic yards of earth the employment therefor of hundreds of coolies, with locomotives, trucks, and so on.

"At Hunghom, the reclamation of about five acres of sea bed has to be made and to that end the sea wall foundation has been done, nullahs and sewers diverted and much of the earth dumped. To bring this earth down to the sea a temporary railway a mile and a half long has been laid to get at the high portion of the chief cutting, which is to eventually be about 150 feet deep. Now the railway is tapping the upper level, by and bye it will come down to the permanent level. This temporary line does not traverse the route of the permanent line. It skirts round it; dodges down the line of least resistance as it were, and shows up along the rifle range. Then it dips into where the work is being done, crossing the old water works valley on timber bridges. Here coolies are operating without stop (individually, however, they are not demonstrating perpetual motion in the human) and they are at the sea end working on the face of the big hill that has to be removed just behind the electric power house. On the other side of the range other gangs are digging their quota and actually a continuous three miles of work is being proceeded with. Some of the bridges are almost completed; culverts and water channels have been made, and the short tunnel in the first section has been pierced. Daylight was let in during the week in January and the brick work in the tunnel is well in hand. This tunnel is being built on the Italian principle, top first, and now that the excavation is through the hill progress is likely to be rapid.

"All along the route of the first section industry is the order of the day. The contractors have their forces well in hand and at the present rate of progress the works are likely to be finished long before the big tunnel is completed. But the work is not hurried or scamped by any means. It is substantial to a degree. Careful and constant European supervision of the workmen, who are all Chinese, is evident at every point, and when we consider the difficulty of instilling new ideas and western methods into the Oriental mind we must congratulate those responsible and wish their efforts deserved success."

VOLCANIC ASH FOR CEMENT

The use of volcanic ash with cement is the subject of an interesting article by Consul George H. Scidmore of Nagasaki which includes a number of analysis of value. He says:

"On November 24, 1907, I visited the deposits and works of the Kyushu Volcanic Ash Company near Karatsu on the northwestern side of this island of Kyushu. I was accompanied by the president of the company and Commander Roy C. Smith, of the United States ship Chattanooga, who, with several other officers of the American Navy, was detailed by Rear-Admiral Hemphill to make an investigation and report for the benefit of the Navy Department, as large quantities of cement are required for work in the Philippines.

"The company simply makes use of that species of volcanic earth known as 'pozzuolana,' which is stated to have been used in hydraulic cements in Italy as early as 200 B. C. Later its value was recognized throughout Europe. It is contended by this company that Portland cement, when used alone for marine work, is liable to crack and cause serious damage after a lapse of time, and the reason given for this defect is that the 'free' lime which is produced during the setting of the cement combines with sulphuric and carbonic elements.

"Credit is given to Doctor Michaelis, a German, for solving the problem by the admixture of pozzuolana, his theory being that the soluble elements of the pozzuolana absorbed and combined with the 'free' lime of the Portland cement and thereby not only neutralized any harmful effects, but, by judicious treatment, helped to give greater tensile strength to the compounds than if the cement were used alone. A more compact setting, special value in sea work, and cheapening of cost are other important advantages claimed for the addition of pozzuolana.

"The abundant deposits of this material throughout the volcanic regions of Japan have led to a careful study of the question and resulted in the establishment of several plants in this district. The considerations of uniformity of quality, abundance of supply, and convenience in working and transportation led the volcanic ash company to select land situated at the top of a range of mountains, on a high road about 7 miles from Yobuko, excellent ports on the northwest coast of this island.

"The pozzuolana is dug from the hillside and conveyed in carts to adjacent mills where it is spread on an open field for drying. Later the drying is completed over furnaces and the material is then ground and sifted through sieves of 2,500 to 5,000 perforations to the inch. Of several species of pozzuolana the company prefers that of a heliotrope color and special to the Karatsu district. Samples of it, both crude and in powder, accompany this report, and have been furnished to Commander Smith for experiments in the Philippines. [The samples will be loaned to business firms making application to the Bureau of Manufactures.]

"The following are analyses of the Karatsu pozzuolana, or volcanic ash, as furnished by the company:

Composition.	Heliotrope.	Gray.	Mixture of 1 and 2.
	Per cent.	*Per cent.*	*Per cent.*
Decrease in heat test...	9.90	9.70	8.40
Silicic acid..............	41.95	42.10	44.15
Ferric oxide	18.56	18.28	17.40
Alumina.................	25.00	25.72	24.81
Lime	1 83	1.15	1.57
Magnesia................	.82	.85	.94
Sulphuric acid.........	Trace only	....	....
Alkali.	2.35	2.20	2 78
Soluble silicic acid (in silicic acid)...........	26.40	28.	26.75

The following is the result of a chemical analysis of pozzuolanic cement made at the prefectural laboratory of Osaka:

Loss on ignition....	10.02	Total alkali.........	.93
SiO_2 (soluble silica 31.81 per cent)....	42.63	MnO_2................	.08
Fe_2O_4	16.83	SO_3..................	Trace
Al_2O_3	27.52		100.00
CaO	.03		
MgO.................	.96		

[This leaves 1 per cent unaccounted for.—B. of M.]

TENSILE TESTS

"I have also been furnished the following table showing the results of tensile tests of mixtures containing this material, made at the Sasebo naval depot, where large quantities have been used in Government work:

Qualities of water used in experiments	Proportions in weight mixture.				Tensile strength per square inch in English pounds				
	Portland Cement	Lime	Pozzuolanic Cement	Sand	After 4 weeks.	After 8 months.	After 6 months.	After 12 months.	After 24 months.
Sea	7	....	3	20	284	455	553	574	583
	6	....	4	20	284	405	469	432	515
	5	....	5	20	268	364	463	459	500
Sulphate of Magnesia	7	....	3	20	278	431	500	511	518
	6	....	4	20	251	385	415	441	464
	5	....	5	20	238	340	414	427	472
Fresh	7	....	3	20	291	376	449	436	471
	6	....	4	20	243	345	426	414	489
	5	....	5	20	205	318	401	370	388
Sea	7	....	3	30	167	325	401	400	423
	6	....	4	30	158	264	300	300	349
	5	....	5	30	147	214	291	291	383
Sulphate of Magnesia	7	....	3	30	167	277	296	260	311
	6	....	4	30	133	175	195	177	206
	5	....	5	30	116	170	162	176	265
Fresh	7	....	3	30	161	247	293	306	345
	6	....	4	30	152	256	285	291	331
	5	....	5	30	124	210	249	229	288
Fresh	..	2	8	20	160	312	271	306	....
	..	3	7	20	156	292	295	317	....
	..	2	8	30	122	215	214	214	....
	..	3	7	30	106	234	217	223	....

"The following is a report of compression test of Karatsu volcanic ash said to have been made at the Kioto Imperial University:

Description.	Proportion in volume.			Per square inch in pounds.				
	Portland cement.	Volcanic ash.	Sand.	After 1 week.	After 4 weeks.	After 3 months	After 6 months	After 1 year.
Fresh water.	1	....	3	782.25	1,177.68	1,639.88	1,880.25	2,104.97
Fresh water.	.5	0.5	3	493.53	782.25	1,178.88	1,191.57	1,453.57

MIXING DIRECTIONS—MARKET PRICES.

"As a result of experience the company recommends the following mixtures, the proportions being in volumes:

"For harbor, dock, and general sea work, ash 3, cement 2, sand 10; for water works, drains, river embankments, roads, and tunnels, ash 3, lime 1, cement 1, sand 10; for drains and plastering ash 4, lime 2, cement 1.5, sand 10; for foundations and brickwork, ash 1, lime 1, sand 30 to 40; for concrete add gravel one and one-half to twice the quantity of sand used. Sand and gravel should be well washed and partially dried before mixing.

"The following directions for mixing are given: Place the kneading stand at the desired spot Have all the materials ready at hand. Have volcanic ash and lime or cement well mixed as desired, and adding sand to it, mix it again, pouring in a proper amount of water; knead it over and over, using sufficient pressure, and covering entirely the outside of sand with volcanic ash, etc., knead them until the different materials lose their own colors and come to one color.

"The company prepares the ash, ready for use, packed in straw bags, weighing about 140 pounds each, the prices for which are at Nagasaki 70 sen (35 cents), at Kobe 80 sen (40 cents), and at Yokohama 1 yen (50 cents). In large quantities the prices, free on board ship, per ton of 2,000 pounds, are at Nagasaki and Shimonoseki (Moji) 10.5 yen ($5 23), at Kobe 12 yen ($5.98), at Yokohama 15 yen ($7.47). Freights from Nagasaki and Shimonoseki (Moji) to Seattle and San Francisco per ton of 2,000 pounds are about $4, and from Nagasaki to Manila about $2 50.

KIND WORDS FOR CHINA

"R. W. Smith, who is connected with Messrs Jardine, Matheson & Co., of Shanghai, China, spent a few days in Portland," says the *Timberman*, the leading lumber magazine of the Pacific slope, published at Portland, Oregon. "Mr. Smith says the outlook for railroad building in China is very bright, and, during the next ten years, if nothing unforeseen happens, he looks forward to a wonderful activity in the commercial development of China. He says the timber interests of the Yalu River have been overestimated and that the Pacific Coast has not much to fear from that quarter. The industrial revolution which is going forward in the reduction of the export of flour from this Coast to the Orient, caused by the building in China of large flour mills, must necessarily continue. The United States will continue to export the wheat from which a large share of the flour will be made, but the milling will be done on the other side. Mr. Smith says there has been some wheat exported in a small way from Vladivostock. The wheat was raised along the Trans-Siberian road and is an excellent quality of hard wheat. The virgin soil and the rigorous climatic conditions are conducive for growing an excellent cereal.

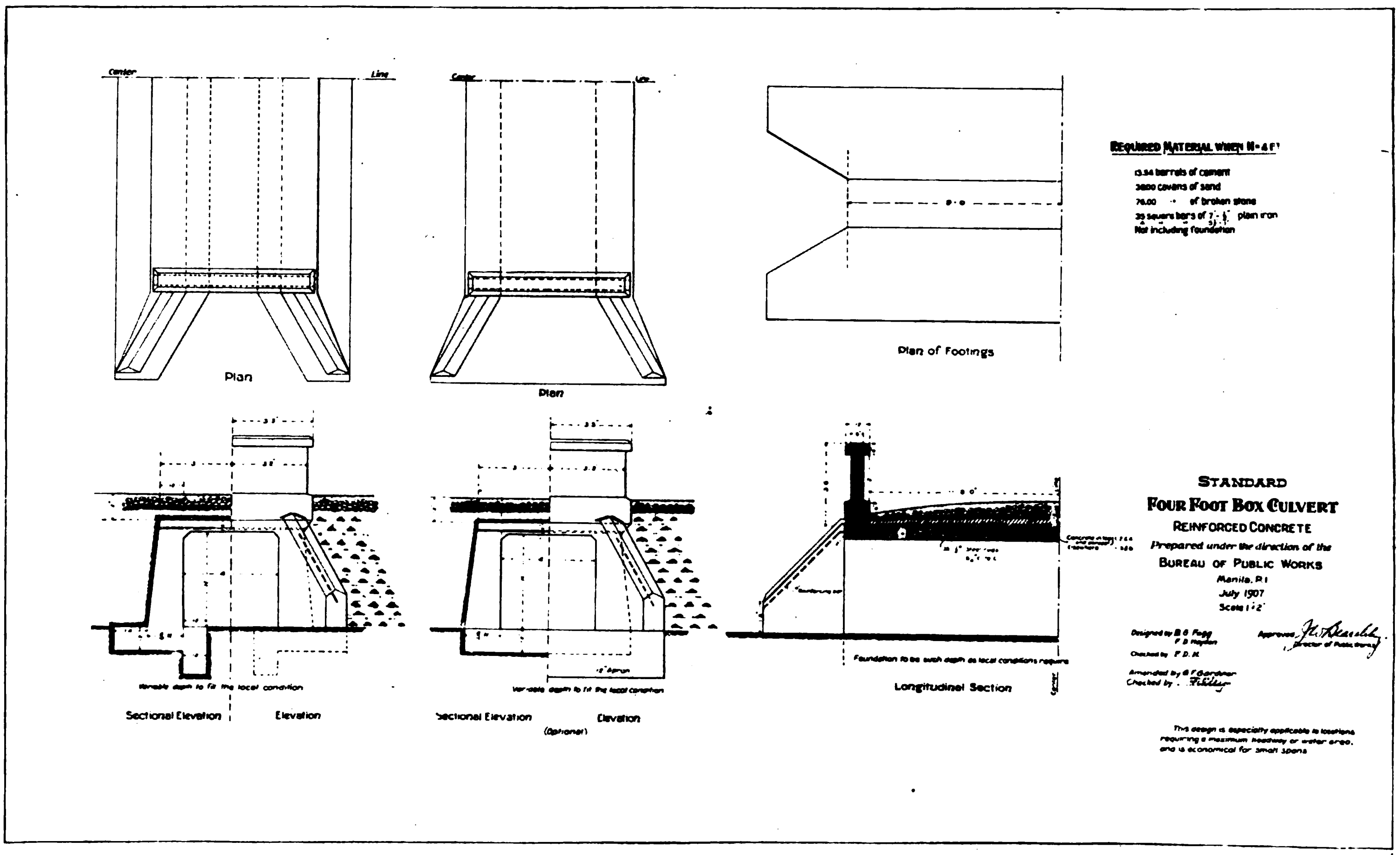
ROAD BUILDING IN THE PHILIPPINES

Since 1898, the American government in the Philippines, recognizing the necessity of good roads to properly develop the resources of the country, has been endeavoring to interest the people in the construction and maintenance of highways with indifferent success. It was and is the desire of the administration to interfere as little as possible with the internal affairs of the country and to depend upon a reasonable display of initiative in this work on the part of the people, who should have the greatest interest in this important work. To say the least, the government has suffered a series of disappointments, but with remarkable patience, turned from one plan to another, at each disappointment, hoping against hope that the desired interest would be roused among the people and that it would be unnecessary to abandon the established policy of the administration and force the natives to build and maintain the roads. At last Secretary Forbes of the department of commerce and police believes he has evolved a solution of the problem in the form of a scheme whereby provinces failing to provide for the proper maintenance of roads within their boundaries shall forfeit participation in insular appropriations. The history of this feature of public works in the Philippines is of special interest at this time and the success of the scheme being carried out will surely be watched with interest. It has a significant bearing on the experiment of the United States government in developing an oriental people towards the goal of self-government, and demonstrates how much patience is needed to accomplish anything in the desired direction, when there is lacking the initiative so essential in a people aspiring to the control of their own affairs. Another remarkable characteristic that interposes is the optimism of the secretary of the department of commerce and police, who refuses to be discouraged and believes that he has at last found means to solve the problem.

At the end of June 30, 1907, the bureau of public works completed one full year in the new form given it by the reorganization act, which provided that all the construction work of the insular government, with the exception of the lighthouse construction, which is carried on under the direction of the bureau of navigation, and the Manila sewer and water supply systems, under the direction of a special engineer, was thus centralized under the direction of the bureau of public works.

As a result of the continued effort of Commissioner Forbes, secretary of commerce and police, the work of the bureau of which Mr. J. W. Beardsley is director, under his encouragement and support, has exceeded expectations. Upon his recommendation the government has undertaken the policy of letting contracts for most of the work of construction, thus encouraging local contractors. The appointment of district engineers replacing the provincial supervisors placed the supervision of provincial construction directly under the supervision of the bureau of public works. As a result of the centralization the percentage of cost of supervision was reduced from 19.6% to 14%.

The greatest obstacle to the development of the country is the lack of good roads. For years, under the greatest degree of discouragement, Secretary Forbes endeavored to interest the natives in this great work. Some progress has been made, but lack of initiative on the part of the Filipinos continues to obstruct the program, based on the policy of the administration to give to the people the greatest degree of self government and participation in the direction of their own affairs. In fact, it would seem that the practical and effective has been sacrificed to the theory when no other alternative was offered. However, there appears to have been a great deal of diplomacy and patience exercised by the secretary in pressing his program for good roads and, from indications, the energy involved has not been entirely wasted. As evidence that if the Philippines continue indefinitely to suffer from lack of good roads, the blame cannot be charged to Secretary Forbes, a résumé of the efforts put forth to interest the natives and, at the same time, avoid conflict with the liberal policy of the administration, and of the legislation on road construction and the results obtained are of interest.

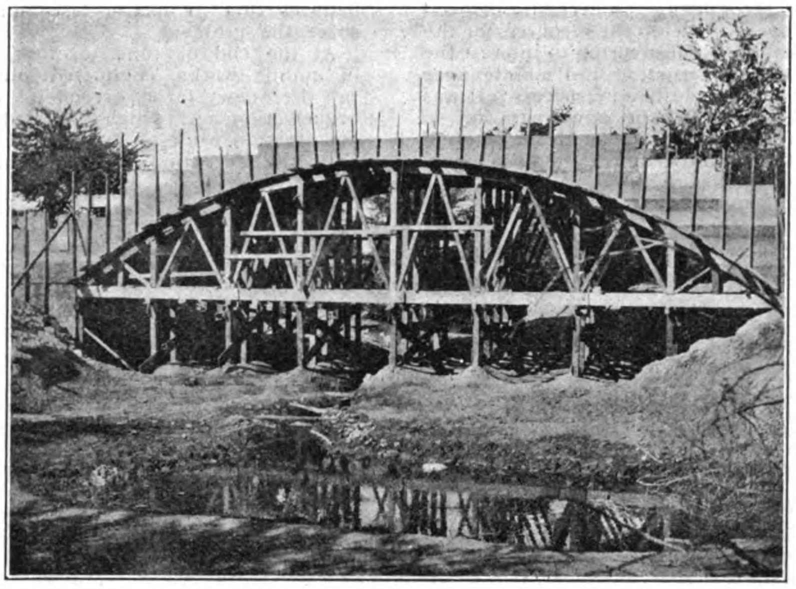


On July 13, 1906, a road law was passed by the commission authorizing provinces and municipalities to compel every person liable to the payment of the cedula tax to work for five days in each year on the roads or pay a commutation in lieu thereof. The enforcement of this law was made optional with the provinces and municipalities. The hostility of the people of the islands to this measure soon became very pronounced. Although assurances had been received from local governors that the law would be accepted, the conventions of municipal officials in the provinces of Laguna, Surigao, Ambos Camarines, Alba and Bohol in each case refused to accept the law by such an overwhelming majority that it soon became evident that the people were not ready to adopt this means of bettering their roads.

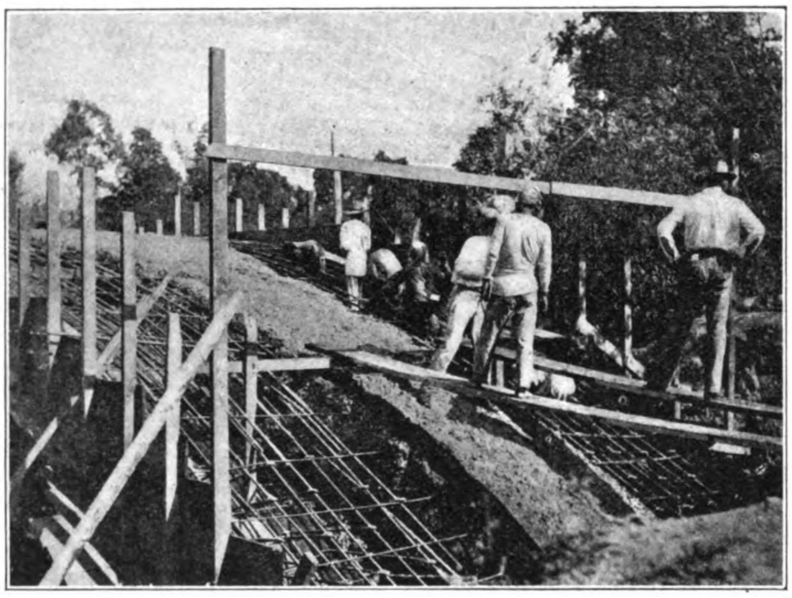
The absolute necessity for good roads, however, grew more and more apparent. Roads constructed or repaired by the Insular government and turned over to the provinces and municipalities to maintain,

within two or three years became absolutely impassable. The first two or three years after the construction of a road are often the most important from the point of view of maintenance. The soft places in the road develop, the rocks sink in spots and soon the continued traffic cuts through the shell of the road material and the puddles made by the depression of the road surface soon become pits in which the road material for the whole width of the road sinks and is lost. A little work at the outset filling up the depressions as they appear, keeping the surface of the road crowned and making sure that the ditches and culverts are kept clear and that the water does not go running down in ruts instead of off to the side as it should from a properly crowned surface, would make the difference between having a good road and having none at all.

In his last two annual reports Secretary Forbes called attention to the fact that much of the construction effected by Americans has been allowed to deteriorate. This condition has continued with but few exceptions, and the condition of the roads throughout the archipelago is lamentable and growing worse from day to day. What were good and passable roads three years ago are now quagmires in the rainy season, and during the past year it has become evident that to avoid the paralysis of industry in many districts,



SAN JACINTO REINFORCED CONCRETE ARCH, 60-FOOT SPAN, PANGASINAN



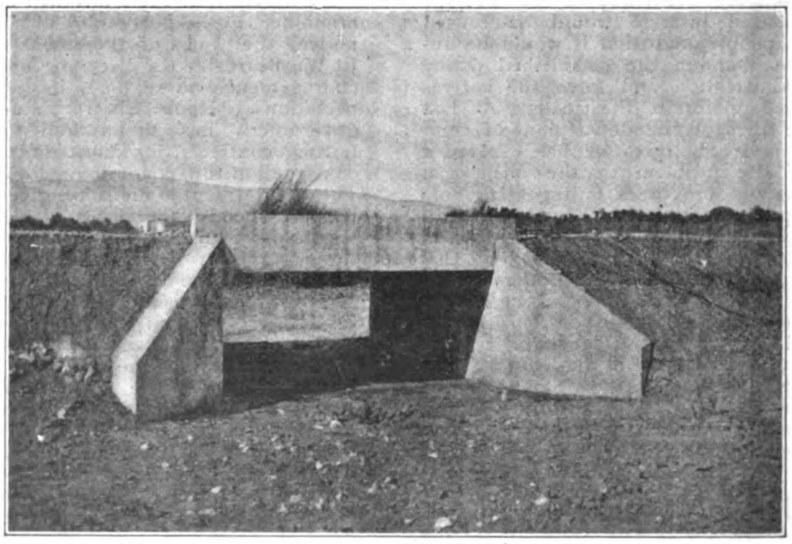
REINFORCED CONCRETE ARCH, 60 FOOT SPAN, MANAOAG, PANGASINAN
(Central arch ring completed)

drastic change of policy was needed in regard to road construction and maintenance. The main difficulty has been lack of resources. In many cases local officials were willing but had not the authority of law to obtain the funds necessary for this important work. In the tropics the problem of road maintenance is doubly hard. The luxuriance of the vegetation is such that unless prevented, the whole of any road is liable to be obliterated in the course of six months by encroaching vegetation. The rainfall is often so torrential in its nature that it is very difficult to figure on the maximum amount of water to be drained, as the path of an unusual typhoon, or a combination of two typhoons at the same time, are likely to cause a downpour of rain amounting almost to a cloudburst at some unexpected point with resultant loss of road or bridge or whatever construction lies in the way.

The failure of the provinces to accept the Optional Road Law necessitated new measures and the commission passed an act in the spring of 1907 which provided that any province with the approval of the governor general could declare certain specified roads, toll-roads for a period not to exceed five years. In this way the cost of maintenance of a road could be made to become a direct charge on the people who used it most. But one province has availed itself of this authority, viz., Laguna, where the San Pablo-Bay road was made a toll road to provide funds for the maintenance which, it is estimated, will cost ₱15,000 a year.

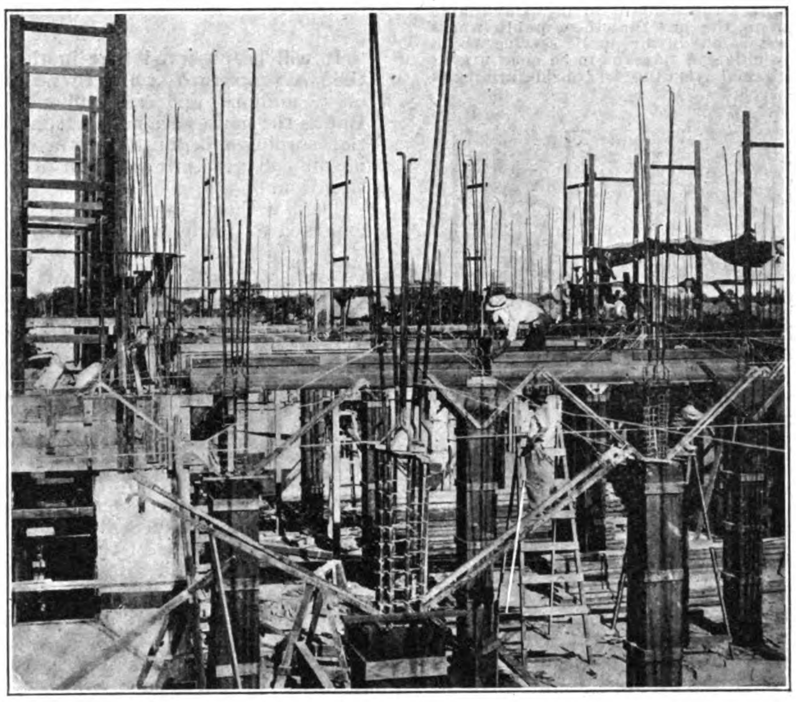
Objection was raised in some of the provinces to the Road Law because there was no provision for its repeal or suspension by either provinces or municipalities, once accepted. To meet this objection, another act was passed by the commission authorizing the provinces to accept the provisions of the Option Law for a definite period of time and in addition gave similar authority to the municipalities. This plan was not a success generally.

The real remedy, however, was found in the passage of another act which authorized the provincial board of any province to double the cedula tax for that province. This differed from the old road law in that the money was to be utilized under the direction of the provincial board and in its discretion and not under the direction of the municipalities. In case of failure to pay, the value of the money could be worked out on the roads at a given price. Provinces were not quick to avail themselves of the opportunity thus offered to them and by the time the annual appropriation bill came round the attention of the commission had been definitely focused on the absolute necessity of definite action in regard to



TYPICAL REINFORCED CONCRETE SLAB CULVERT, PANGASINAN

the establishment and continuance of an effective system of road construction and maintenance. At the same time the commission desired to interfere as little as possible with the autonomy of the provinces and municipalities. The provinces during the year have been made practically autonomous having now two-thirds of the provincial board elected by the people instead of the two-thirds being appointed by the governor general. It made the difference of making the board two-thirds Filipino where formerly the two-thirds were usually American.

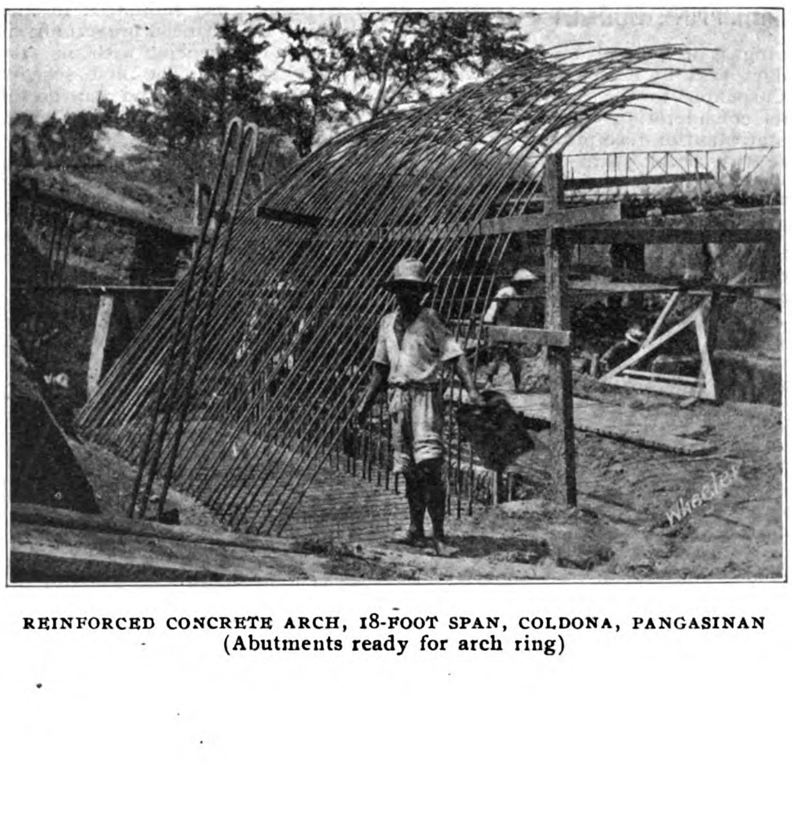


SAN LAZARO HOSPITAL EXTENSION, MANILA
(Showing reinforced concrete girder forms and column reinforcing)

Autonomy did not solve the road problem, however. It soon became obviously necessary for the commission to find some way of inducing the provinces to accept the double cedula tax provision and get a pledge that all roads constructed would be maintained without possibility of deterioration. The secretary of commerce and police made a careful study of the problems involved and reached the conclusion that the most practical method of their solution was by a system of insular aid given on condition of a proper maintenance system being established under penalty, in case any roads are found to be deteriorating, of the money for the upkeep of the same being turned over to the director of the bureau of public works and the road being maintained under the direction of the insular government. The administrative power of the Governor General to remove officials neglecting their duty is also a very powerful agency in compelling attention to this important detail. The system of maintenance determined upon is generally known as the "Caminera" system, which provides for the division of the roads in sections of such length as can be cared for properly by one man continuously at work. This road man, or caminero, is charged with the duty of working continually upon his section keeping back encroaching vegetation, keeping the culverts clear and the road properly crowned, using approved material, only, for filling of ruts and depressions, and it is hoped that provision will be made to grant police authority to the caminero in so far as matters pertaining to the maintenance of roads and bridges and keeping them open for use is concerned. The department recommended that the caminero be given the authority to prevent the use of roads by narrow tired carts; the obstruction of the roads by vehicles or other structures or articles; prevent the stealing of planks or bolts from bridges and of rock or gravel from other parts of the road, and should notify central authorities instantly in case of any occurrence resulting in damage to his section of the road to an extent beyond his powers to remedy within a reasonable and prescribed time. The system proposed involves the deposit of road material approved by competent authority in places designated for the same alongside the road at short distances which are to be kept filled for use by the caminero and to make it unlawful to put any other material on the roads. This will put an end to the very pernicious system now prevalent of maintaining roads with vegetable matter or mud taken from the roadside. It is hoped that each province will have road gangs in addition to the camerinos, and rock crushers, steam rollers and traction engines and cars, in order to have adequate and economical machinery with which to carry out the details of road construction and maintenance.

To accomplish these results, the commission determined to make a very considerable appropriation for roads, conditional upon the acceptance of the double cedula tax, and in furtherance of this plan another act was passed which authorized 10% of the internal revenue tax to be divided proportionately to population among those provinces that accepted the double cedula tax provision. The money, which should go to those provinces which do not accept the double cedula provision, will be added to the fund allowed those provinces that do accept it. In addition to this the commission made an appropriation of ₱1,321,225 for roads and bridges, ₱821,225 of which was for specific road projects and ₱500,000 to be alloted at the discretion of the secretary of commerce and police, the money for specific road projects to be available only for those provinces which entered into a contract of continuing road maintenance, under penalty, in case of failure, of having to pay over a certain amount of money to the insular government and having the work done by the bureau of public works. The ₱500,000 to be alloted by the secretary of commerce and police has been proportioned among the provinces which do not receive specific amounts, and is alloted on condition only that the provinces enter into an agreement for the maintenance of all first class roads in their respective boundaries said first class roads to be designated by the director of the bureau of public works, and that they agree to appropriate a given amount each year for each section and maintain all roads in good order with the caminero system, under penalty, as before indicated; that the director of public works take over the maintenance in case of failure. The policy desired to be established is that no officer can hold his position if he fails to maintain a road which has been entrusted to his care with sufficient funds to properly perform the work; that the criterion will be the condition of the road; that each section will have the exact condition in which it was left when it was completed, and that in case any deterioration is noted, one month's notice will be given the local official, and if at the end of that time he has not properly fulfilled his duty, as sufficient funds should be appropriated for each section of the road to leave ample margin for contingencies, the burden of the proof will be on the delinquent official to prove that the deterioration of the road was due to extraordinary and unusual causes; that the governor general will prescribe the strictest kind of procedure and make the official's tenure of office dependent upon his maintenance of this absolutely vital requirement for the life and property of the people under his care.

The result of this program was that all the provinces but four had the courage to



REINFORCED CONCRETE ARCH, 18-FOOT SPAN, COLDONA, PANGASINAN
(Abutments ready for arch ring)

accept the law doubling the cedula tax and thus enabled themselves to participate in the two million pesos of insular money made available for road purposes. The increased cedula tax in those provinces where it has been doubled will amount to a grand total of ₱1,500,000 a year, which, with the new insular aid and the old road and bridge funds, were those measures continued in effect each year, will give an annual amount for road-building of about four million pesos or considerably more than five times the amount available for the expenditure on roads in previous years.

The four provinces that have not had the wisdom and foresight to avail themselves of the privileges of this road construction are Bulacan, Cavite, Tarlac and Nueva Ecija. It is hoped that those provinces will realize by another year what would inure to the best interests of their people and will join their sister provinces in the new era of road development.

USE OF WIDE-TIRED CARTS

The law in regard to the use of wide-tired carts in the Philippines has not been enforced rigorously and as it should have been. The manufacture of such wheels in Bilibid did not meet with as ready encouragement in demand and purchase as was anticipated. Even the wheels on hand after supplying the indifferent demand are going slowly. There are indications that the continued agitation for better roads will increase the interest and the introduction of the wide tire will receive some impetus. A plan has been adopted in the province of Laguna, where the officials are particularly active in the good roads campaign, by which carabao owners may secure a wide tired cart from the province provided the owner gives the province in return a month's work in hauling road material. This is an inducement to the owners of animals and helps build the roads at the same time introducing the wide-tired cart with its good effect in reducing the cost of maintenance.

During the year 1907 there have been 276 culverts and 32 bridges built of reinforced concrete and in addition 5 bridges of steel at the expense of the provinces active in this work.

At the end of the fiscal year 1907, Director Beardsley's report shows that there was expended in the construction of insular roads from insular funds the sum of ₱126,657.70; buildings completed, ₱193,136,86; buildings being constructed, ₱256,607.76.

PROPOSED PHILIPPINE BUDGET FOR 1909

The following is a general résumé of the proposed budget sent by Executive Secretary Frank W. Carpenter to the Philippine Assembly for its consideration together with a comparative statement of receipts and expenditures for the two fiscal years preceding:

Balance from preceding year.	₱ 2,536,627.61
Receipts:	
Customs revenue	16,000,000.00
Internal revenue	2,783,500.00
Franchise taxes:	
Railways	11,500.00
Cable lines	45,000.00
Total Insular revenue from taxation	20,840,000.00
Miscellaneous receipts	540,000.00
Total receipts	21,380,000.00
Reversions from appropriations for prior fiscal years and completed projects	300,000.00
Total available for appropriation	(a)24,216,627.61
Appropriations:	
Fixed charges	1,397,348 44
Public works	6,531,000.00
Current expense	20,082,462.00
Total appropriations	(a)28,010,810.44
Reserve: Balance available for appropriation	

a The apparent excess (₱3,794,182.83) of proposed appropriations over the amount of funds available therefor is due to the fact that those public-works projects and extensions of the public service which are deemed by chiefs of Bureaus to be most urgent are presented to the Legislature for consideration and selection.

COMPARATIVE STATEMENT—FISCAL YEARS 1909, 1908, AND 1907.

	1909	1908	1907
Balance from preceding year	₱2,536,627.61	₱6,782,006.29	₱2,012,150.48
Receipts:			
Customs revenue	16,000,000.00	16,000,000.00	16,592,447.28
Internal revenue	4,783,500.00	4,846,100.00	5,369,149.24
Franchise taxes—			
Railways	11,500.00	10,900.00	5,097.22
Cable lines	45,000.00	45,000.00	46,564.07
Total Insular revenue from taxation	20,840,000.00	20,902,000.00	22,013,257.81
Miscellaneous receipts	540,000.00	716 000.00	771,256.74
Total receipts	21,380,000.00	21,618,000.00	22,784,514.55
Reversion from appropriations for prior fiscal years and completed projects	300,000.00	500,000.00	1,282,041 60
Total available for appropriation	24,216,627.61	28,850,006.29	26,078,706.68
Appropriations:			
Fixed charges	1,397,848.44	2,285,787.50	606,407.29
Public works	6,531,000.00	8,998,995.00	1,591,387.55
Current expense	20,082,462.00	20,028,646.18	17,148,905.50
Total appropriations	28,010,810.44	26,318,378 68	19,346,700.84
Reserve: Balance available for appropriation	....	2,536,627.11	6,782,006.29

JAPAN'S FINANCIAL STATEMENT

In response to a request from the Budget Committee of the Japanese House of Peers, the Government has submitted instructive figures showing the financial programme for the next six years commencing with the 41st fiscal year, namely 1908-9. The first schedule indicates the actual income and expenditure for each year independently of special provisions. The figures are:—

A.

TABLES OF REVENUES AND EXPENDITURES.

Year.	Revenues.	Expenditures.	Deficiencies of Revenue.
1908-09....	611,048,048	623,040,043	11,996,995
1909-10....	528,000,000	585,000,000	57 000,000
1910-11....	529,000,000	567,000.000	38,000,000
1911-12....	532,000,000	585,000,000	53,000,000
1912-13....	527,000,000	555,000,000	28,000,000
1913-14....	515,000,000	537,000,000	22,000,000

The second table sets forth the provision made to restore the balance:—

B.

PROVISION OF FUNDS TO MEET DEFICIENCIES.

	Receipts from Increased Taxes and growth of Revenue.	Surpluses from previous years.	Totals.
1908-09	 4,915,291	40,283,967	45,199,248
1909-10	25,000,000	30 000,000	58,000,000
1910-11	... 30,000.000	10,000,000	31 000,000
1911-12	37,000,000		37,000,000
1912-13	41,000,000		41,000,000
1913-14	45,000,000	13,000,000	58,000,000

Next follows a table comparing the last columns of the above two schedules:—

COMPARATIVE TABLE SHOWING THE DEFICIENCIES OF *A*. AND THE SURPLUSES OF *B*.

Year.	Deficits of Table *A*.	Total of Table *B*.	Differences.
1908-09	11,996,995	45,199,248	+33,202,253
1909-10	57,000,000	38,000,000	+ 1,000,000
1910-11	....38,000.000	31 000.000	— 7,000,000
1911-12	53,000,000	37,000,000	—16,000.000
1012-13	28,000,000	41,000,000	+13.000,000
1013-14	22,000,000	58,000,000	+36,000,000

It will be observed that in the above table the two years 1910-11 and 1911-12 show deficits of 7 millions and 16 millions respectively. But as the figures are not large, and as substantial surpluses begin to accrue from 1912-13, no difficulty is anticipated in dealing with the situation.

There is then a table showing the net revenue expected to accrue from the increased taxes:—

ANTICIPATED NET REVENUE FROM INCREASED TAXES.

	Sake.	Sugar.	Kerosene.	Totals.
1908-09	545,348	2,819,444	1,550,504	4,915,291
1909-10	4,970,000	2,910,000	1,560,000	9,450,000
1910-11	4,350,000	3,160,000	1,620,000	10,140,000
1911-12	6,500,000	3,710,000	1,730,000	11,950,000
1912-13	8,980,000	4,680,000	1,940,000	15,610,000
1913-14	13,370,000	4,680,000	1,940,000	20,000,000

An estimate is also given showing the net increase which is expected to accrue year by year in the proceeds of the Tobacco Monopoly owing to augmented rates:—

NET INCREASED INCOME FROM TOBACCO MONOPOLY

1908-09	6,409,353
1909-10	6,980,000
1910-11	7,760,000
1911-12	8,700,000
1912-13	9,830,000
1913-14	9,840,000

Finally the Committee received the following statement relating to the Emergency Fund (war fund):—

	Yen.
Total Fund received	1,721,212,256
Total expended in connexion with War	1,508,472,538
Surplus	212,739,718

Out of the above surplus, a sum of 100 millions was drafted into the Budget for 1907-8, and 63,553,926 *yen* was appropriated to meet the expense of work belonging to the section of extraordinary war expenditures, so that there remains a final surplus of 49,185,791 *yen*.—*Japan Mail.*

PUBLIC IMPROVEMENTS AT CANTON

In addition to the new three-storey post office and the supply station of the China Light and Power Co. on the old river front at Canton, the new Customs' buildings will add greatly to the appearance of that section. The construction of the new custom house group has been recognized as necessary for some time owing to the increase in the volume of trade at that port. The plans were prepared by Messrs. Purnell & Paget and the contract let to Messrs. Hong Cheong of Canton. The main section will have a river frontage of 240 feet constructed of reinforced concrete with exterior of red brick and stucco and interior finish of hardwood. This building will be of three storeys. In all there will be six residences, examination buildings, customs' club, library, concert hall and wide verandahs on either side. The buildings will be equipped with electric light installation and water connection.

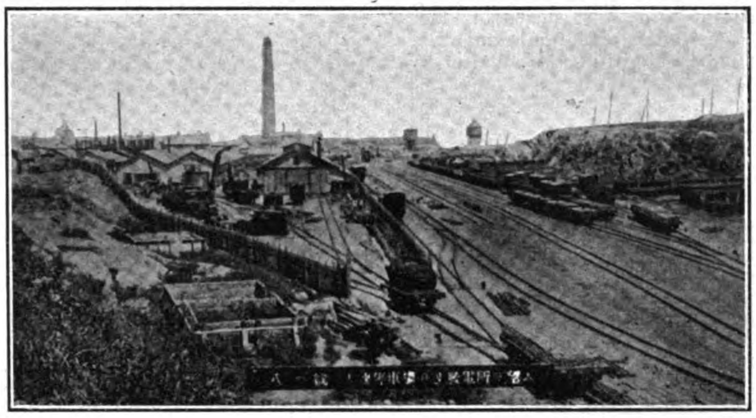
SOUTH MANCHURIA RAILWAY ENTERPRISE

A correspondent of the FAR EASTERN REVIEW at Tairen writes:

"Much has been written in the past year concerning the activities in Manchuria, and particularly with reference to railway building and the enormous amount of equipment ordered for railroad purposes. All of the material for the South Manchuria Railway will be discharged from the steamers at Tairen, the principal seaboard town, and at this point all of the rolling stock will be erected and put into commission. Tairen is beautifully situated and no doubt will develop into a splendid city when the great resources of Manchuria are developed. The country is rich in mineral, coal and other products which, no doubt, will be fully developed when the South Manchuria Railway Co. complete the changing of the 42" gauge to 4' 8½", or broad gauge, and their two hundred or more locomotives put into commission.

"Many steamers are now arriving from America bringing locomotives, passenger and freight cars, bridges, material for large railway shops, and thousands of tons of 85-lb steel rails. The South Manchuria Ry. have now standard gauge tracks (4'8½") from Tairen to Port Arthur upon which they are now operating some of the new equipment recently received. It will be a boon for this part of the country when travelers can ride with the comfort that this railway will provide between Port Arthur and Tairen, to Mukden and Harbin; the consummation of which is not far distant.

"I enclose photograph of one of the new South Manchuria Railway suburban locomotives, built by the American Locomotive Co., of which there are 69. A number of the Engines referred to are now pulling regular trains between Tairen and Port Arthur. In the aggregate, the same Locomotive Co. will furnish for this railway system some two hundred locomotives; I enclose photograph showing one of their large consolidation engines pulling a train of broad gauge cars into Tairen railway yards.

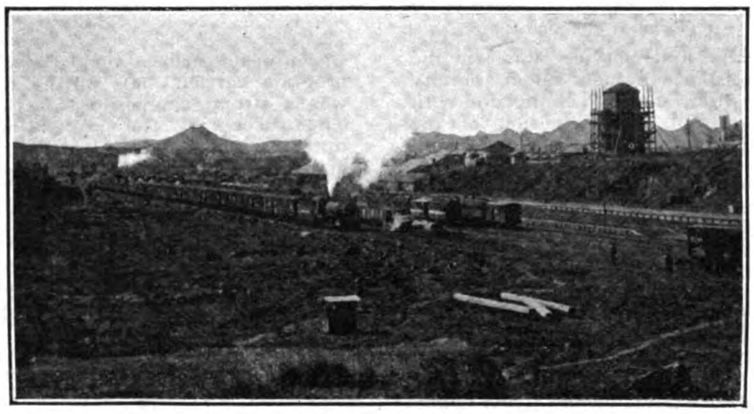


SOUTH MANCHURIA RAILWAY'S OLD SHOPS AND NARROW GAUGE TRACKS TO BE REPLACED BY BROAD GAUGE

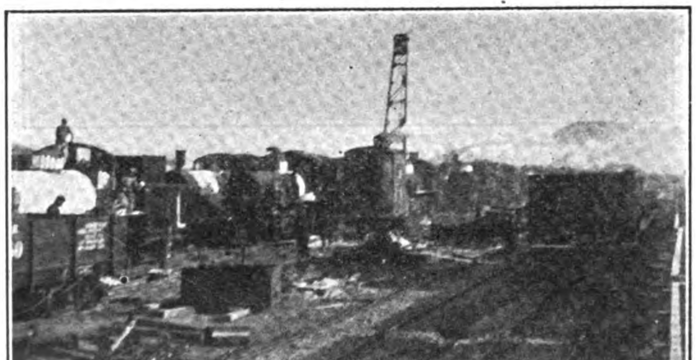
"The management of the South Manchuria Ry. have planned well for the erection of their new equipment, and in the erecting yards can be seen many 15 and 30 ton steam traveling cranes moving back and forth among fifteen or twenty locomotives, passenger cars, and many freight cars that are all under the hammer, as it were, and being erected at the same time by the very large force of workmen employed. All of the work is supervised by the Japanese people, but the bulk of the labor is done by the Chinese coolies; but the fitters, or machinists and carpenters are mostly from Japan, and they are a splendid lot of workmen."

In reference to the prospects of this line, Mr. Kubota, one of the managing directors of the company, is quoted by the *Japan Mail* as follows:

"The Chinese," he says, "are learning to appreciate fully the advantages of railway transport, so that, in spite of the very poor harvest of last year, the beans and bean-cake entrusted to the railway for carriage during the current year already exceed the total carried during the nine months of the Company's operations last year. It may be that for the moment a portion of this produce will find an exit *via* Vladivostock, but in all probability that will be only a temporary phenomenon. The development of the zones attached to the railway is a matter of great importance. These zones measure 55 million *tsubo* and are for the most part capable of very profitable cultivation. The Railway authorities see plainly that by encouraging settlers in these zones the income of the line can be very greatly increased. Hence the idea of appropriating 8 or 9 million *yen* to the building of schools, hospitals and habitations. Ultimately a system of partial local autonomy will be pursued in the zones, and taxes will be levied at rates fixed after consultation with the inhabitants. The administrative power in the zones is vested in the Railway authorities, but the power of police remains in the hands of the Governor-General. The great region whence goods offer for railway transportation lies to the north of Mukden, and if the proposed Fakumen railway were built, it would tap this region and divert a major part of thetraffic from the South Manchuria line. At its nearest point the Fakumen road would be only from 25 to 26 miles distant from the



VIEW OF CONSOLIDATED ENGINE OF THE AMERICAN LOCOMOTIVE CO. HAULING TRAIN OF AMERICAN CARS INTO TAIREN YARD—ALSO NARROW GAUGE TRACK AND CARS.



ROLLING STOCK IN ERECTION YARD AT TAIREN—TWO 40—TON STEAM TRAVELING-CRANES IN YARD NOT INCLUDED IN VIEW.

Japanese line, and would afford facilities of carriage to Peking on one side and to New-chwang on the other. That the consummation of this project would be in the last degree injurious to the prosperity of the South Manchuria Railway there can not, according to Mr. Kubota, be the slightest doubt, and he insists that Japan must resolutely maintain her treaty rights.

Mr. J. W. BEARDSLEY, DIRECTOR BUREAU OF PUBLIC WORKS

From the date of his graduation at Cornell in 1891, Mr. J. W. Beardsley, Director of the Bureau of Public Works, Philippine Islands, has been active in connection with engineering construction and public works of magnitude. His first service was in the capacity of assistant engineer under the city engineer of Newton, Mass., in connection with the construction of the extension of the Metropolitan Sewer System of Boston remaining in that capacity for a year. In 1892 he accepted a position on the staff of the chief engineer in charge of the Sanitary District of Chicago where he remained until 1898. From 1898 to 1899 he was in charge of the St. Lawrence Division of the Deep Waterway Commission investigation for determining location and cost of deep waterways between the Great Lakes and the Atlantic. In 1899 he was assigned to duty with the United States Engineering Corps on Harbor and Canal Improvements on the Great Lakes, in which capacity he was serving in August, 1902, when he was appointed consulting engineer to the Philippine Commission and later, upon the organization of the Bureau of Engineering, he was appointed chief. The reorganization bill provided for the amalgamation of the bureaus of Architecture and Engineering under the title of Bureau of Public Works and Mr. Beardsley was placed in charge as director.

The Bureau of Public Works in the Philippines is one of the most important departments of the government service. The expenditure for public roads, buildings, etc., under the direction of the bureau amounts to millions every year and, as its director, Mr. Beardsley has not only demonstrated his ability to handle the situation but has shown a remarkable capacity for patience and perseverance in overcoming the impossible and improbable, as the great work of his bureau progressed from its initial stage.

BRIDGE ACROSS SOUTH MANCHURIA RAILWAY TRACKS AT TAIREN OPENED IN OCTOBER 1907

MANILA MERCHANTS ASSOCIATION

At the annual meeting of the members of this association March 30, the following officers were elected:

PRESIDENT, John Gibson.
1st Vice-President, Daniel Earnshaw.
2nd Vice-President, F. L. Strong.
3rd Vice-President, E. Steiger.
Secretary, tied between A. G. Cohn and Milton E. Springer.
Treasurer, S. Erlanger.
DIRECTORS:
M. A. Clarke, A. C. Cohn, R. W. Dell, Charles Derham, P. G. Eastwick, E. E. Elser, A. J. Francis, Carl Hess, M. Loewenstein, James F. McLeod, Walter E. Olsen, H. M. Pitt, C. E. Preusser and A. Roxas.

This association has been doing magnificent work in spreading broadcast accurate and valuable information in regard to the Philippines and is given generous support by the commercial community.

Mr. M. A. Clarke, the retiring president, has given much of his time to the perfecting of this organization and his successor, Mr. John Gibson, the well-known lumberman, is also a man of marked ability. Mr. Walter E. Olsen has also been identified with the active program carried out during the year and was a strong competitor for the presidency. The success of the association is largely due to the harmony prevailing and the active and unselfish interest taken by the officers and directors.

U. S. Q. M. LAUNCH EGBERT LAUNCHED

The first of the three new steel launches ordered by the United States Quartermaster's Department from the Hongkong and Whampoa Dock Company, was launched from the Kowloon docks, March 25 This vessel has been named the Egbert, after Colonel Egbert who was killed in an engagement at Malinta, Philippine Islands March 25, 1899. These launches of 90 feet in length, 15 feet wide, and depth 7 feet 6 inches, will have a speed of 10 knots. The boilers are steel multitubular with 150 pounds working pressure and the engines, compound condensing. The Egbert has been equipped with a de Laval steam turbine and centrifugal fire pump with a capacity of 200 gallons a minute.

SINGAPORE CONTRACTS AWARDED

At a recent meeting of the municipal commission of Singapore the following tenders were accepted:

The Westminster Construction Co., Limited, was awarded the contract for the construction of a clear water tank; to execute some sundry works off the Serangoon Road about 3.5 miles from the city and to install nine filters. The price named was $665,000.

Messrs. Riley, Hargreaves & Co., Limited, were awarded the contract for the supply and erection of the structural steel and iron work, including two entrance gates, for the new central fire station for $13,000.

The contract for the delivery of from 1,000 to 15,000 tons of coal at the rate of 21 s. a ton c. i. f. Singapore, delivery on or about the end of April.

The contract for the supply of labor and materials, with the exception of the iron and steel work, and to erect the central fire station building for the sum of $64,500, was awarded Messrs. Chia Tieu Sien & Co.

MOTOR FIRE ENGINE FOR SHANGHAI

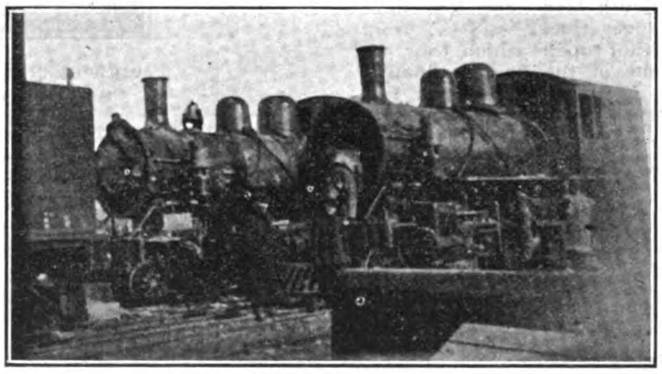
A new motor steam fire engine was recently constructed by Messrs. Merryweather and Sons, of Greenwich, for the Shanghai Fire Brigade. It is especially interesting as being the largest of its kind in the world, and has the enormous pumping capacity of 800 gallons per minute, says the *L. and C. Express.* As in other machines of its type, the boiler is fitted with an oil fuel burner, and the wheels are shod with solid indiarubber tires, those in the rear being of twin section. Before being shipped to its destination it was subjected to severe road tests in the neighborhood of the makers' works. It can travel up to 30 miles an hour on the level if necessary, whilst the powerful brakes enable it to be efficiently controlled.

BIDS ADVERTISED

The Bureau of Public Works of the Philippine Islands announce that sealed proposals will be received to April 20th, for the construction of a reinforced concrete bridge of two spans across the Tapon river, Dalaguete, Cebu, including all plant, labor and materials.

The Bureau of Supply of the Philippine Islands has advertised for proposals for the supply of 36,000 barrels of cement to be opened April 30th.

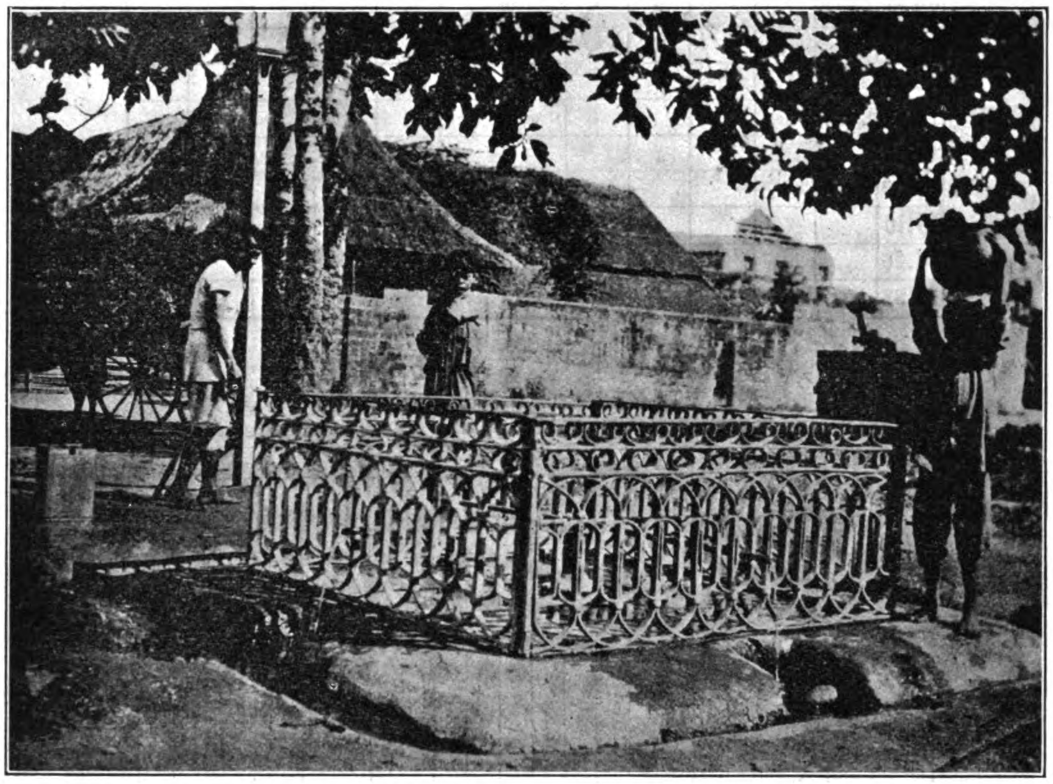
The Bureau of Supply has advertised for proposals for the supply of 36,000 tons of coal for fuel, the coal to be of good quality for steaming purposes, free from dust and slack, with deliveries to be made at Iloilo, Cebu, Zamboanga, Jolo, Tacloban, Romblon, and Legaspi. Tenders will be received until May 5th.



VIEW OF OPERATIONS IN SOUTH MANCHURIA RAILWAY ERECTING YARDS AT TAIREN—OVER 200 ENGINES AND HUNDREDS OF BROAD GAUGE CARS TO BE ERECTED

SANITARY CONDITIONS IN THE PHILIPPINES

The report for the fiscal year ending June 30, 1907, recently published by Dr. Victor G. Heiser, Director of the Bureau of Health, indicates a marked improvement in sanitary conditions in the islands and a great victory over disease and prejudice. The year 1907 broke all previous records since American occupation and is a high compliment to the splendid organization, the patience and perseverance that has characterized the work of the bureau.



MUNICIPAL ARTESIAN WELL AT BACOLOR, PAMPANGA PROVINCE

In his introduction Dr. Heiser says:

"The effect of the sanitary reforms which have been persistently carried out during the past few years commenced to show in a most concrete and substantial manner during the period covered by this report. The public health has been more satisfactory than at any time since the American occupation of the Philippines, from which it is reasonable to infer that health conditions are better now than at any time for the past one hundred years or more. The death rate per thousand for the city of Manila has been reduced from 40.90 last year to 36.91; the rate for Americans being 5.59, which is a reduction of 3.75 over the previous year, and among Spaniards the rate dropped from 17.40 to 15.84.

"There has not been a single case of plague in the Islands and not one death from smallpox in the city of Manila. Cholera in recognizable form has disappeared entirely from the Archipelago. The Provinces of Cavite, Batangas, Cebu, Rizal, La Laguna, Bataan, and La Union, where heretofore there have been approximately 6,000 deaths annually from smallpox, have not reported one death from this disease. In all, there have been over 2,000,000 vaccinations performed, the direct effect of which was that many lives were spared and thousands of persons were saved from being disfigured for life, and at the few places at which smallpox did break out it made no headway.

"The solution of the leprosy problem has passed from the theoretical to the practical stage. The number of lepers September 1, 1905, was 3,580; the number June 30, 1907, is 2,826.

"Great strides were made in introducing better drinking water, artesian wells being now in actual use in many of the towns of the provinces."

In connection with the cholera, the last outbreak was insignificant compared with former ones owing to the splendid fight put up by the bureau. In all there were 848 cases and 744 deaths in Manila and 7,085 cases and 5,243 deaths in the provinces. The epidemic was confined to the infected area by strict outgoing maritime quarantine; prompt isolation of the sick and disinfection of the premises and no attempt at quarantine by land. A remarkable feeling of security prevailed among all classes and this was directly responsible for the preservation of many lives and little disturbance of business.

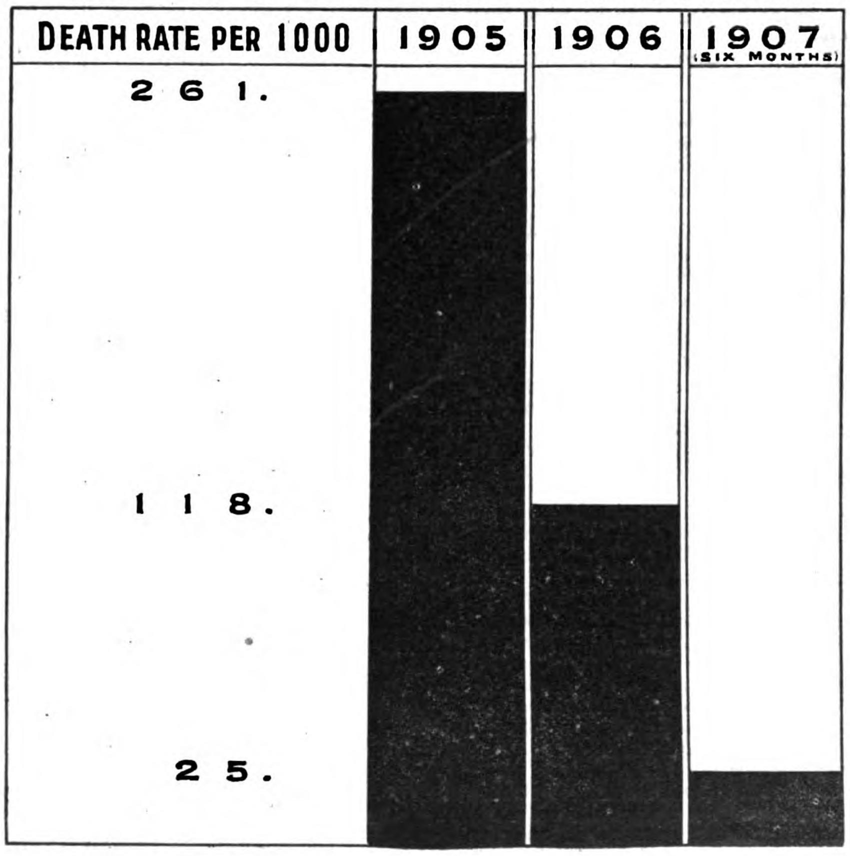
Of plague not a single case developed during the year with the exception of 24 cases of accidental origin from inoculations made among prisoners in Bilibid prison against cholera. Of the absence of plague the director writes:

"Manila, and in fact the entire Philippine Islands, present a plague record which stands in favorable contrast with that of the rest of the Orient. In India, about one person out of every 300, or over 1,000,000 persons annually, are dying of plague. In Hongkong, Amoy, Singapore, Saigon, and other Oriental cities having commercial intercourse with Manila, many cases are being constantly reported. Dr. Atkinson, the honorable principal civil medical officer of Hongkong, in an address before the Philippine Islands Medical Association at its last session, held in Manila February 27, 28, March 1 and 2, 1907, said:

"It is an almost hopeless task to expect to stamp out plague entirely in Hongkong, seeing how liable we are from our geographical position to reinfection from the neighboring countries. Many insanitary areas and buildings have been allowed to be erected, and it is only by their erection on improved plans and by rigid prevention of overcrowding that plague or any other infectious disease can be stamped out of Hongkong."

"The Philippines have been more fortunate, but of course are subject to reinfection on account of their geographical position and extensive and increasing commerce. A continued immunity from the disease can be had only through the greatest precautions being taken with vessels from plague-infected ports, and by placing the ports of entry in such good sanitary

CHART SHOWING REDUCTION IN DEATH RATE AT THE IWAHIG PENAL SETTLEMENT, PALAWAN, SINCE THE BUREAU OF HEALTH TOOK CHARGE.



condition that even if the disease should be imported its eradication could be accomplished easily. This means, so far as Manila is concerned at least, that the work of improving insanitary areas, and removing or repairing insanitary structures, which was begun several years ago, must be pushed steadily until the last place of that kind has been eliminated."

Smallpox has been practically eradicated. Where heretofore 6,000 deaths occurred from this disease, during the year covered by the report not one death was reported. This is due to vaccination. Last year 2,022,380 persons were vaccinated and in all there have been 3,515,383 persons treated.

The sanitary code recently adopted by the city of Manila has served to greatly assist the bureau in its work inasmuch as it regulated the food supply, domiciliary sanitation and provided for the removal of special causes for disease. The illustrations accompanying this article demonstrate the improvements made in sanitation and in the methods of vendors in the sale and distribution of food supplies, etc. The task of interesting the people was no easy one, but there is an encouraging improvement.

During the year 100,000 pesos were appropriated for the construction of a new hospital for Bilibid prison; 20,000 pesos for the installation of a proper sewer and toilet system; 20,000 pesos for the installation of sanitary beds in the general prison; 55,000 pesos for an addition to the insane hospital at San Lazaro and 50,000 pesos for the construction of a new hospital at Baguio.

Until the new water supply of Manila is completed the danger from polluted water is one unrecognized by the natives and an effort has been made to encourage the people to boil, distil or filter the supply used. Filtering is more popular than other precautions and in order to place a cheap and effective filter within the reach of the poorest, the bureau has devised one as described in the illustration consisting of an ordinary native banga, a jar made of clay into which is placed two or three inches of gravel and on top of this a foot of clean river sand. A faucet provided with a tap is inserted in the bottom of the jar. These jars are used generally by the natives as water buckets and the whole apparatus costs only a few centavos.

The water supply of the municipalities in the provinces is a serious menace to health. The government is slowly overcoming this by the introduction of artesian wells. This program will take some time as there are about 600 municipalities in the archipelago. Wells have been bored in several provinces with good results, the mortality in some of these towns having dropped twenty per cent, since the wells were bored.

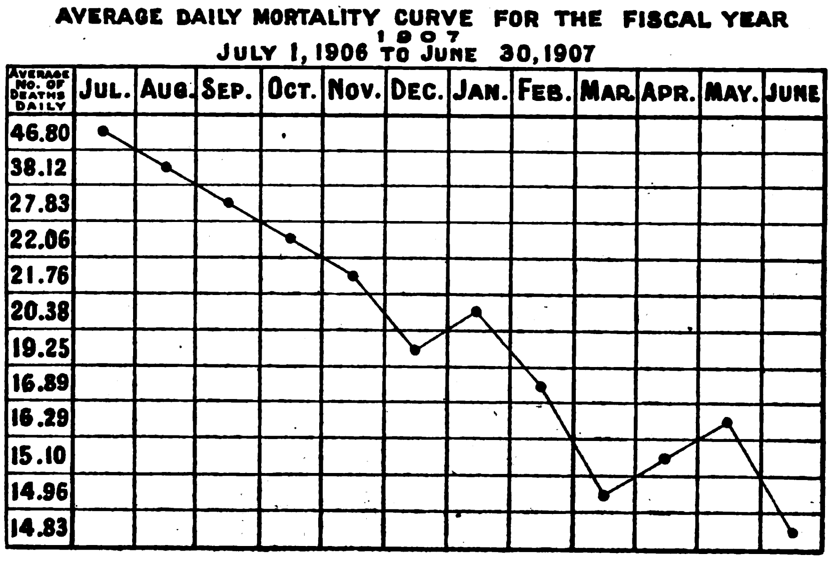
Referring to the work of the Bureau in the regulation of cemeteries throughout the islands among the natives the director writes:

"The questions which this office has been called upon to decide have not been so much questions of sanitation as they were differences of opinion which in all probability had nothing to do with cemeteries, but were expressions of animosity injected into reports of cemeteries with the hope that some action would be taken by this office which would be to the disadvantage of the opposing faction. On account of the foregoing the greatest difficulty has been experienced in obtaining a statement of fact in each case and the difficulty of arriving at a just decision correspondingly increased. Naturally no matter which way the decision went in a given case one or the other faction was disgruntled. This is deeply regretted because it makes many enemies to the cause of sanitation and many projects which are of greater importance from a health standpoint than cemeteries will be defeated by the enemies thus made."

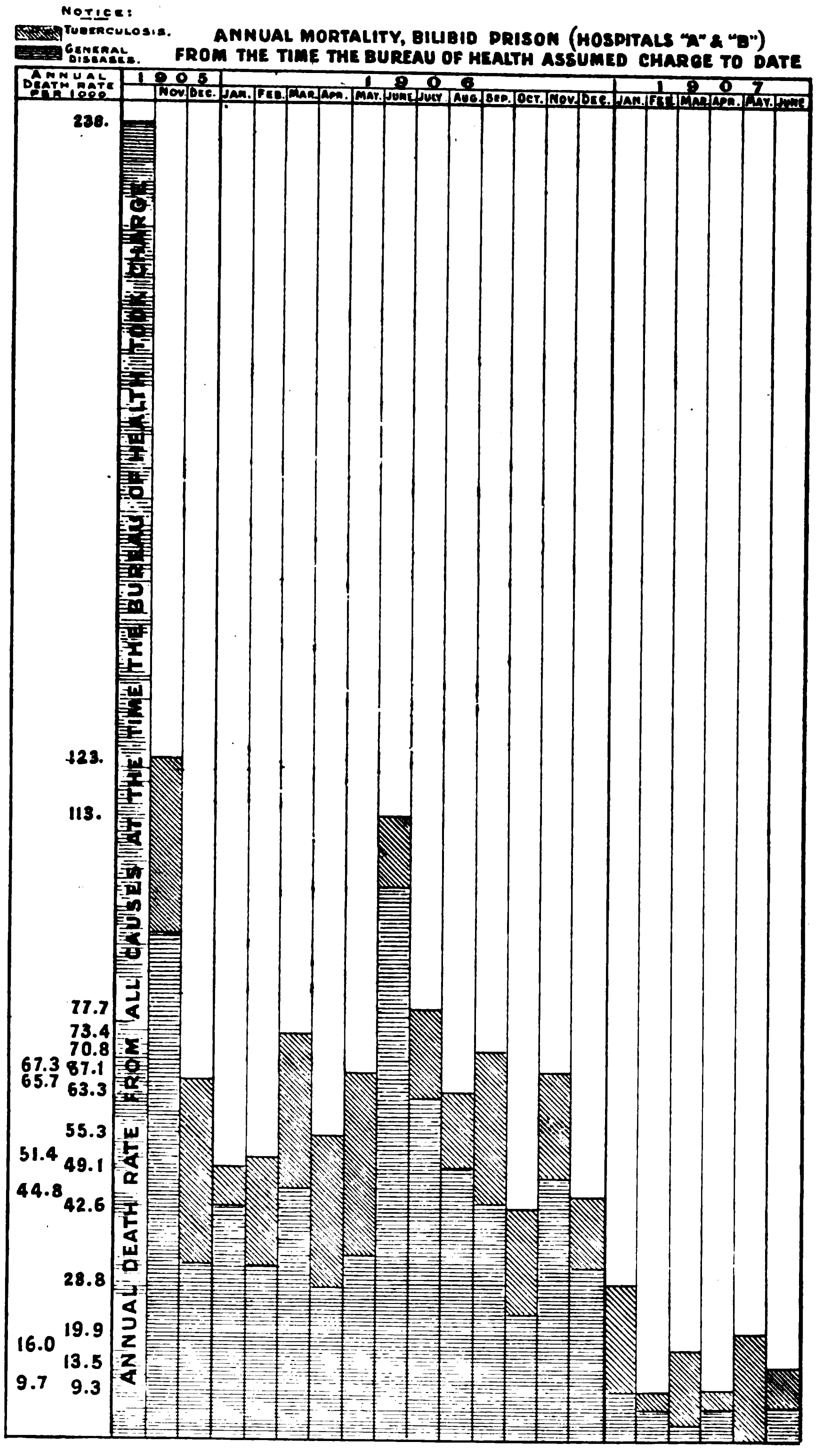
Sanitary Engineering Division.—The agitation against the new sanitary code delayed the operations of this division, but the excitement engendered by the native press having died out, the progress made has been satisfactory.

The scope of the work of this division covers the entire islands and more and more attention is being paid each year to provincial work.

The various styles of sceptic vaults which have been evolved as a result of the experience gained since American occupation have now been so perfected and have given such uniform satisfaction that it has been deemed advisable to include in the report a drawing of each



MANILA MORTALITY CURVE



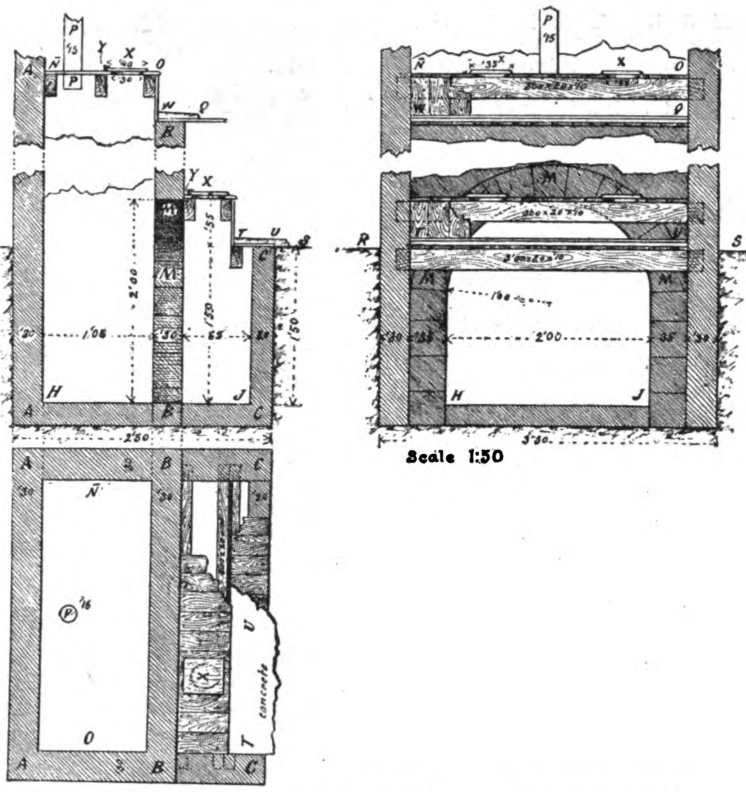


PLATE I.—TIGHT VAULT FOR HOUSES OF TWO OR MORE STORIES

style; the diagrams and instructions sent out to contractors follow:

PLATE I. SPECIFICATIONS.—To be of dimensions, shape, and design shown in drawing and to consist of five walls (AC, CC, CA, AA, and BB) of concrete or suitable masonry.

The wall (BB) back of closet on first floor and terminating under floor of closet on second floor to be supported by arch (MM).

Bottom of vault (HJ) to be at least 1.50 meters below ground surface (RS).

Seats (XX) to be of wood as shown, and connection between seats and vault to be airtight.

All seat holes to be covered with hinged wooden covers (YY).

Vault to be vented properly with a cast-iron pipe (PP).

Floors of closets (TU and WQ) to be of wood covered with a coating of cement mortar sloped toward door of closet.

Top of vault on second story (ÑO) to be covered with an airtight wooden floor, connection between floor and vault to be airtight.

Concrete to be composed of 1½ parts pure Portland cement, 3 parts clean sand, and 5 parts of gravel or stone broken small enough to pass through a 2-inch ring.

The Portland cement to be of one of the standard brands in general use in Manila, or of a quality equally as good, and which shall be satisfactory to the city engineer and the Bureau of Health.

Sand to be cleaned of all mud, loam, ooze, salt, and other impurities by washing in fresh water.

The cement, sand, and broken stone to be mixed while dry. Enough water shall be used to wet thoroughly the different ingredients.

The concrete to be mixed only in small quantities, and each batch to be placed as soon as mixed, and thoroughly tamped.

Mortar to be composed of equal parts of pure Portland cement and clean sand mixed with enough water to convert same into a soft paste. When applied to interior surface and top of vault to be well worked in with trowels.

CAUTION.—The dimensions of the above vault are estimated to be sufficient for the use of 8 adults, reckoning that same will be cleaned every six months. In case a vault is desired for a larger number, the size shown in drawing should be proportionately increased.

PLATE 2. SPECIFICATIONS.—To be of the dimensions, shape, and design shown in drawing, and to consist of four main walls (AB, BD, DC, and CA), a division wall (FF), and bottom of receiving vault (CF) of concrete or other suitable masonry, lined with a layer of cement mortar, a bottom of loose stone (NN) to filter, vault, and a concrete top (WW) to rest on a wooden platform consisting of a board floor (PPP) laid on joists (VVV).

Filter vault to be filled with loose or broken stone or gravel, as shown.

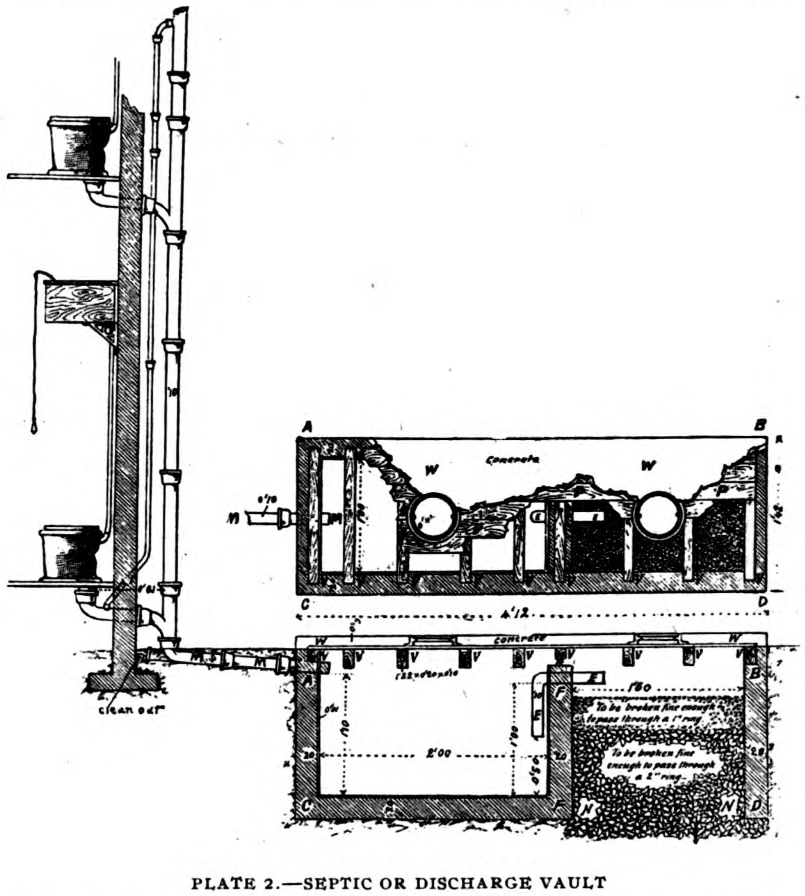


PLATE 2.—SEPTIC OR DISCHARGE VAULT

Top of both receiving and filter vaults to be provided with cast-iron trapdoors; connection between trapdoors and vaults to be airtight.

An opening (R) in the division wall (FF) to be left for ventilation.

Wastes to enter receiving vault through cast-iron waste pipe (MM) provided with clean-out as shown, to pass into filter vault through a cast-iron 90° bend (EE), and to discharge into street sewer or estero through discharge pipe (S).

The under side of top of vault (PP) to be level with ground surface.

Concrete to be composed of 1½ parts pure Portland cement, 3 parts clean sand, and 5 parts of gravel or stone broken small enough to pass through a 2-inch ring.

The Portland cement to be of one of the standard brands in general use in Manila, or of a quality equally as good, and which shall be satisfactory to the city engineer and the Bureau of Health.

Sand to be cleaned of all mud, loam, ooze, salt, and other impurities by washing in fresh water.

The cement, sand, and broken stone to be mixed thoroughly while dry. Enough water shall be used to wet thoroughly the different ingredients.

The concrete to be mixed only in small quantities and each batch to be placed as soon as mixed, and thoroughly tamped.

Mortar to be composed of equal parts of pure Portland cement and clean sand mixed with enough water to convert same into a soft paste. When applied to interior surface and top it should be well worked in with trowels.

Boards for floor, joists, etc., to be of well-seasoned native wood of first group, or of some variety equally durable.

CAUTION.—The dimensions of the above vault are estimated for the use of 8 adults, reckoning that same will be cleaned every year. In case a vault is desired for a larger number, the size shown in drawing should be proportionately increased.

PLATE 3. SPECIFICATIONS.—To be of dimensions, shape, and design shown in drawing, and to consist of four walls (AB, BD, DC, and CA) of concrete or suitable masonry, a bottom of loose stone (FF), and of a concrete top (RR) to rest on a wooden platform consisting of a board floor (NNN) laid on wooden joists (VVVV).

Top of basin to be provided with a bell-trap (K) and vent (O) extending 50 cm. above the eaves of the house, and a cast-iron trapdoor (T).

Concrete to be composed of 1½ parts pure Portland cement, 3 parts clean sand, and 5 parts of gravel or stone broken small enough to pass through a 2-inch ring.

The Portland cement to be of one of the standard brands in general use in Manila, or of a quality equally as good, and which shall be satisfactory to the city engineer and the Bureau of Health.

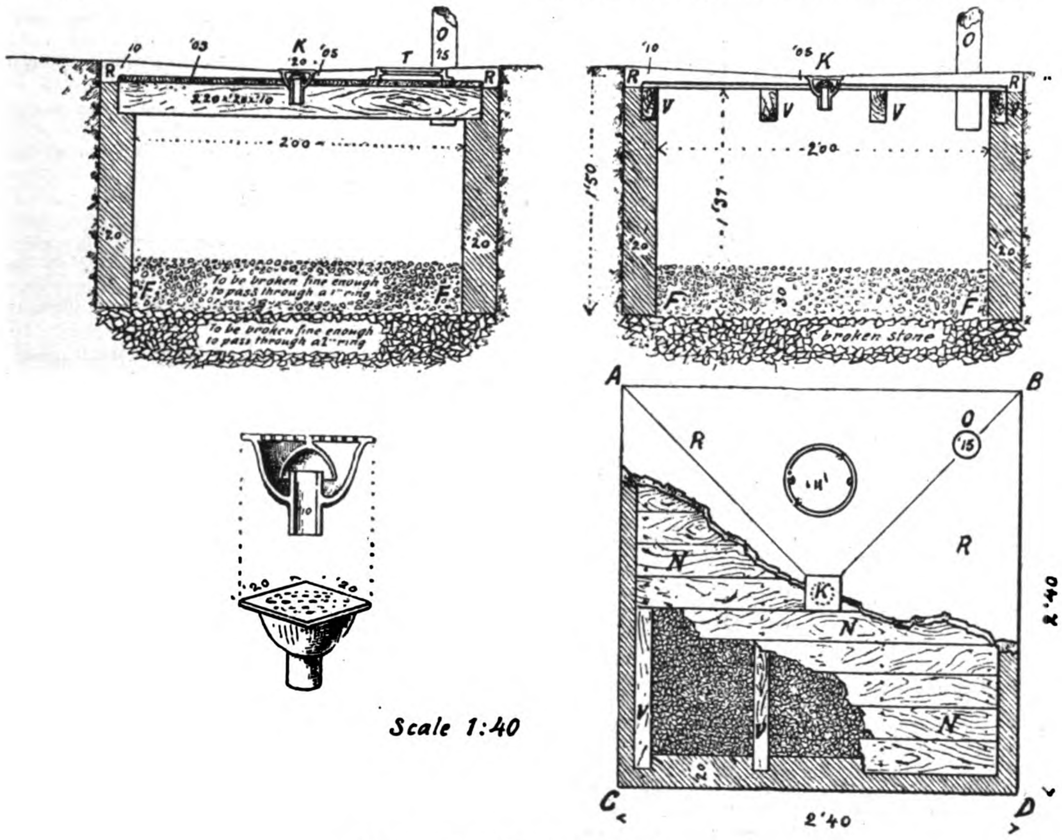


PLATE 3.—ABSORBING BASIN

Sand to be cleaned of all mud, loam, ooze, salt, and other impurities by washing in fresh water.

The cement, sand, and broken stone to be mixed while dry. Enough water shall be used to wet thoroughly the different ingredients.

The concrete to be mixed only in small quantities and each batch to be placed as soon as mixed, and thoroughly tamped.

Mortar to be composed of equal parts of pure Portland cement and clean sand mixed with enough water to convert same into a soft paste. When applied to interior surface and top of basin to be well worked in with trowels.

The interior of basin to be provided with a filter, of broken stone or gravel, as shown.

CAUTION.—Whenever the deposit of mud, grease, etc., on top of gravel filter prevents proper absorption same must be scraped off and removed from basin.

PLATE 4. SPECIFICATIONS.—To be of the dimensions, shape, and design shown in drawing, and to consist of four main walls (AB, BD, DC, and CA), a division wall (FF), and a bottom of receiving vault (CF) of concrete or other suitable masonry lined with a layer of cement mortar, a bottom (NN) of loose stone to absorbing vault, and of a concrete top (WW), to rest on a wooden platform consisting of a board floor (PPP) laid on joists (VV).

Absorbing vault to be filled with loose broken stone or gravel as shown.

Top of both receiving and absorbing vaults to be provided with cast-iron trapdoors, connection between trapdoors and vaults to be airtight.

An opening (R) in division wall (FF), to be left for ventilation.

Wastes to enter receiving vault through cast-iron waste pipe (MM), and to pass into absorbing vault through a cast-iron 90° bend (EE).

The under side of top of vault (PP) shall be level with ground surface.

Concrete to be composed of 1½ parts pure Portland cement, 3 parts clean sand, and 5 parts of gravel or stone broken small enough to pass through a 2-inch ring.

The Portland cement to be one of the standard brands in general use in Manila, or of a quality equally as good, and which shall be satisfactory to the city engineer and the Bureau of Health.

Sand to be cleaned of all mud, loam, ooze, salt, and other impurities by washing in fresh water.

The cement, sand, and broken stone to be mixed while dry. Enough water shall be used to wet thoroughly the different ingredients.

The concrete to be mixed in small quantities and each batch to be placed as soon as mixed, and thoroughly tamped.

Mortar to be composed of equal parts of pure Portland cement and clean sand mixed with enough water to convert same into a soft paste. When applied to interior surface and top of basin to be well worked in with trowels.

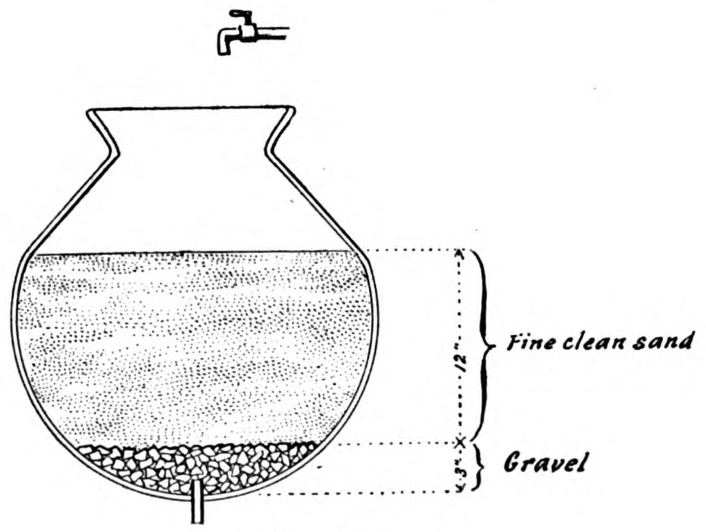
CAUTION.—The dimensions of the above vault are estimated to be sufficient for the use of 8 adults, reckoning that same will be cleaned every year. In case a vault is desired for a larger number the size shown in drawing should be proportionately increased.

PLATE 5. SPECIFICATIONS.—To be of dimensions, shape, and design shown in drawing, and to consist of four side walls, a partition wall, and bottom of concrete or suitable masonry, lined with a layer of cement mortar, and covered with concrete.

Top of basin to be provided with bell-trap, and vent extending 50 cm. above the eaves of house, also a 30 cm. iron manhole with cover.

An apron of concrete to be provided as shown.

Basin to be filled with broken stone or gravel, as shown. All water to enter basin through bell-trap and cast-iron pipe, and after passing through filter to leave basin through discharge pipe to street gutter.



SIMPLE HOUSE FILTER

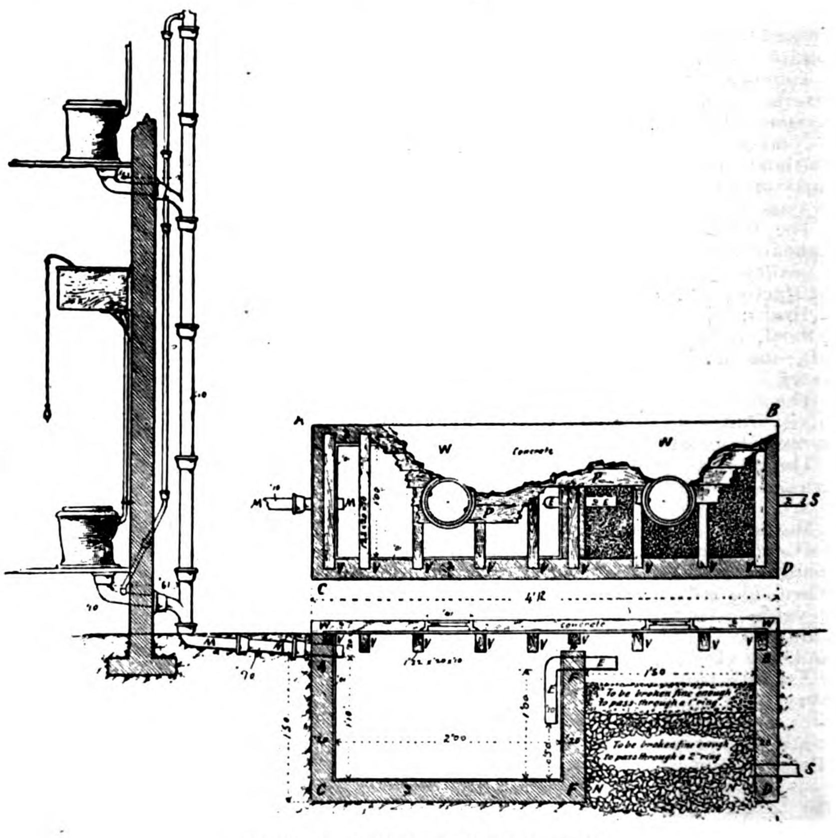


PLATE 4—SEPTIC ABSORBING VAULT

Depth of bottom of basin to be at least 41 cm. below bottom of discharge pipe.

Concrete to be composed of 1½ parts pure Portland cement, 3 parts clean sand, and 5 parts of gravel or stone broken small enough

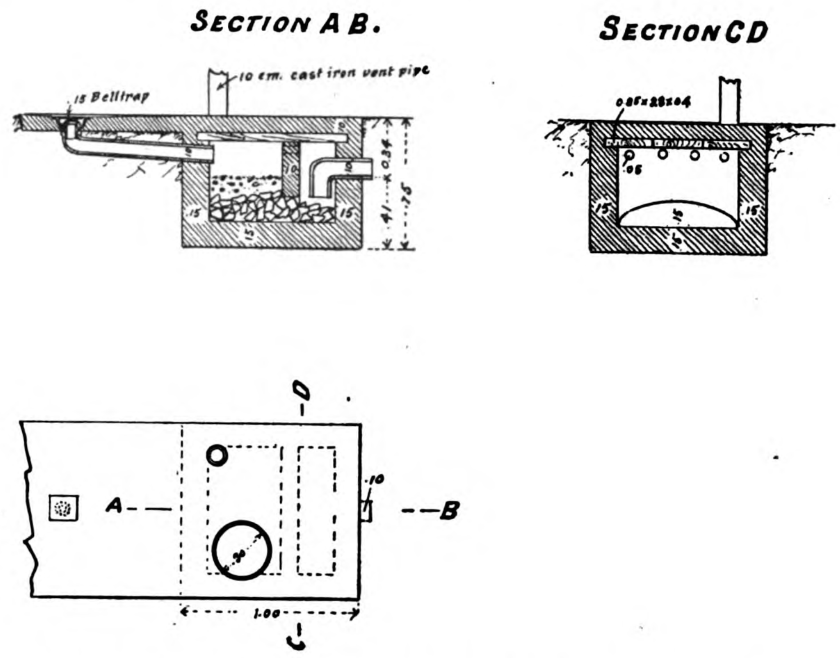


PLATE 5.—DOUBLE SECTION GRAVEL DISCHARGING CATCH BASIN

to pass through a 2-inch ring.

The Portland cement to be of one of the standard brands in general use in Manila, or of a quality equally as good, and which shall be satisfactory to the city engineer and the Bureau of Health.

Sand to be cleaned of all mud, loam, ooze, salt, and other impurities, by washing in fresh water.

The cement, sand, and broken stone to be mixed while dry. Enough water shall be used to wet thoroughly the different ingredients.

The concrete to be mixed in small quantities and each batch to be placed as soon as mixed, and thoroughly tamped.

Mortar to be composed of equal parts of pure Portland cement and clean sand mixed with enough water to convert same into a soft paste. When applied to interior surface and top of basin to be well worked in with trowels.

CAUTION.—The dimensions of the above basin are estimated to be sufficient for the disposal of 20 gallons of waste water daily.

Whenever the deposit of mud, grease, etc., on top of sand filter prevents proper absorption same must be scraped and removed from basin.

PLATE 6. SPECIFICATIONS.—Vault to be of dimensions, shape, and design shown in drawing, and to consist of four sides (AB, BD, DC., and CA) and of a bottom (EF) of concrete, or suitable masonry, lined with a layer of cement mortar, and to be covered with a concrete top shaped as shown, to rest on a wooden platform consisting of a board floor (FFF) laid on joists (VVV).

Bottom of vault (EF) shall be at least 1.50 cm. below the ground surface.

Vault to be suitably vented with a cast-iron pipe (P) extending 50 cm. above the eaves of the house. A roof flange shall be provided where pipe extends through roof.

Closet room to be well lighted and ventilated.

For this type of closet no seats are required, but each hole (J) shall be provided with a brass-hinged wooden cover (X).

Top of vault to be provided with a trapdoor (N).

Concrete to be composed of 1½ parts of pure Portland cement, 3 parts clean sand, and 5 parts of gravel or stone broken small enough to pass through a 2-inch ring.

The Portland cement to be of one of the standard brands in general use in Manila, or of a quality as good, and which shall be satisfactory to the city engineer and the Bureau of Health.

Sand to be cleaned of all mud, loam, ooze, salt, and other impurities by washing in fresh water.

The cement, sand, and broken stone to be mixed while dry. Enough water shall be used to wet thoroughly the different ingredients.

The concrete to be mixed only in small quantities and each batch to be placed as soon as mixed, and thoroughly tamped.

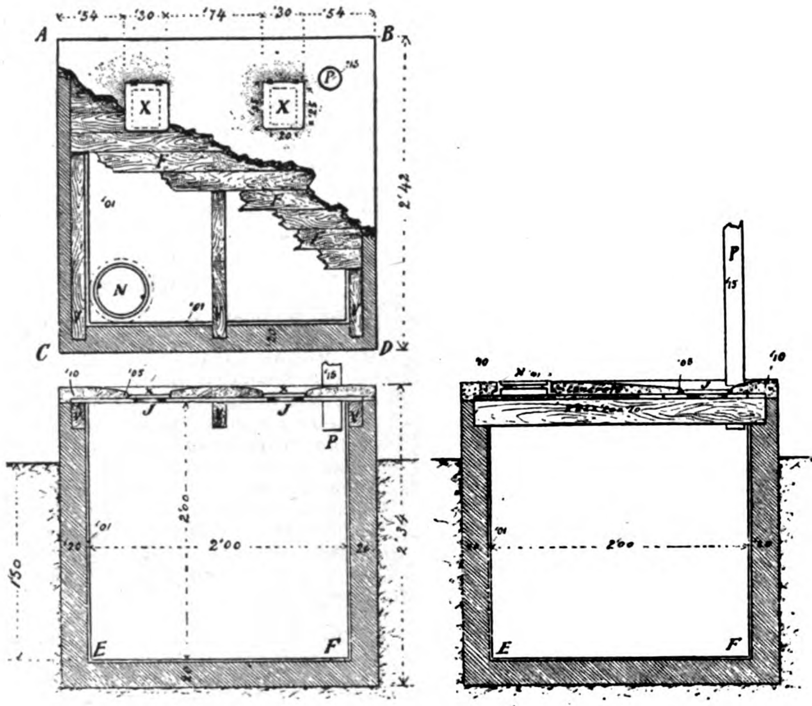


PLATE 6.—TIGHT VAULT WITHOUT SEATS

Mortar to be composed of equal parts of pure Portland cement and clean sand mixed with enough water to convert same into a soft paste. When applied to interior surface, and top of vault to be well worked in with trowels.

CAUTION.—The dimensions of the above vault are estimated to be sufficient for the use of 8 adults, reckoning that same will be cleaned every six months. In case a vault is desired for a larger number, the size shown in drawing should be proportionately increased.

Modern sanitary science has had no greater victory to its credit than the eradication of malaria in the Iwahig penal colony and the reduction of the death rate of Bilibid prison from the dates that the bureau assumed charge as the accompanying charts demonstrate. The bureau took charge of Bilibid prison the latter part of October, 1905, and of Iwahig colony in 1906.

The amount available for expenditure for the fiscal year was ₱1,048,000 of which there remained at the close of the year ₱163,719.24.

In concluding his report Director Heiser writes:

"From a sanitary standpoint the year covered by this report has been a successful one, successful not only because it has been practically free from the devastating influence of epidemic diseases but because of the progress that has been made along the lines of real, effective sanitation and the administration has proven sound from a business standpoint. It is believed that the amount spent this year has produced greater results than any similar amount during any year previous. Lives that have been saved, if measured in terms of commercial value, would reach an enormous amount, but when measured in relation to their value to the body politic, especially when such relation is affected by the conditions of an underpopulated country, the results are beyond human calculation. Heretofore the best efforts of this Bureau were necessarily expended on Manila and municipalities not far removed, but as the work has become more systematized it has become practicable to extend scientific methods of sanitation to the more remote districts. The importance of the work becomes apparent when comparisons are made with near-by Oriental countries. The conditions for the spread of plague are as favorable in the Philippine Islands as they are in many parts of India where it is raging with great severity. The inhabitants of the Philippines are no more immune to cholera than are the inhabitants of Bengal. Why is it that the country is not decimated by devastating epidemics of smallpox as are certain parts of China? The only available explanation, so far as this office knows is that eternal vigilance, which is the price of success, has been observed.

"The newspapers are not yet through praising the results gained by the sanitary methods adopted by the American Government in Havana during the early part of the American-Spanish war. These measures were indeed successful and deserve all the compliments they have received, but it should not be forgotten that they were brought about under

very favorable auspices; that the country was under military rule and the orders of the health officer were supported by the prestige of martial law. The Cuban politicians and the opposing press were, for the time, silent; sanitation was the order of the day and no excuses were taken; there were no lawyers to contest in court; no restraining orders and no legal obstacles. Large sums of money for sanitary purposes were appropriated in Cuba, while in the Philippine Islands only small amounts were available for sanitation. The results here have been brought about on different lines; every effort that has made for progress has been obstructed by meddlesome opposition; and every advance has been sharply contested. Perhaps in the long run it will all be for the best, and the results may be of a more permanent character than if they had been gained with less effort. It has been a campaign of education, patience, and persistence."

PERSONAL

H. E. Yang Shih-hsiang, Imperial Traveling Commissioner, has been appointed special commissioner in charge of the Foochow Dockyards.

Mr. T. W. T. Tuckey, district engineer of the Imperial Railways of North China, has been promoted to the position of engineer-in-chief of the Southern section of the Tientsin-Pukow Railway with headquarters at Pukow, says the *Tientsin Times.*

Mr. T. W. Main, superintendent of the Government plantations at Taiping, has been appointed assistant superintendent of the Botanical Gardens at Singapore.

Mr. H. E. Oakley has arrived in Hongkong from England to relieve Mr. A. D. Shortridge as superintending civil engineer in charge of the Works Department at the Naval Yard. Mr. Shortridge leaves for Europe on vacation leave after four years' continuous service in Hongkong.

H. E. Chang Chi-tung has been appointed managing director in charge of the Tientsin Pukow railway.

Mr. J. A. Thompson, superintendent of the Eastern Extension Australia and China Telegraph Co. in Labuan district, has been transferred to Peking and will be succeeded by Mr. C. W. Bernard as acting superintendent.

Messrs. F. D. Evans, R. F. Vogel-Leech and J. S. Drew have received appointment as assistant engineers in the Pahang public works department.

Mr. C. W. Kinder, general manager and engineer-in-chief of the Chinese Imperial Railways, is reported, according to a Tokio cable to the *N. C. D. News*, to have been chosen to succeed Dr. Haraguchi as railway adviser to the viceroy of Hunan and Hupeh.

Mr. J. Orange, a member of the firm of Messrs. Leigh and Orange, engineers and architects of Hongkong, and who has been a resident there for over 25 years, leaves for Australia where he will take up his residence permanently.

Mr. O. V. Lanning of Messrs. Jardine, Matheson & Co. left Tientsin for the homeland, on a year's vacation, last month.

Mr. Rene Proust, manager of the Serandah Tin Mine, is on a trip to Saghalien and will take in Japan, Korea and Manchuria before his return in order to investigate mining prospects in those sections.

Mr. E. M. Janion, manager of the Singapore branch of the Chartered Bank, leaves for the homeland soon on vacation leave.

Mr. E. J. Beard, chief engineer of the Philippine Railway Construction Co, has resigned on account of ill-health and the supervision of the construction work on the lines has been undertaken by Vice-President Poland of the Philippine Railway Co. Mr. B. B. Harris, office engineer of the construction company, has been promoted to assistant chief engineer.

Mr. Kenneth Stevens, manager for Messrs. Caldbeck, McGregor & Co., will also take a vacation in Europe. Mr. E. A. Swan, formrely of Penang, will act for him during his absence.

Mr. Martin Egan, the well known American journalist who was on the lid for the Associated Press at Tokio during the recent unpleasantness and recently accompanied Secretary Taft on his trip round the globe, recently accepted the position of managing director of the *Manila Times* and entered upon his duties, April 1st. Mr. Egan is a welcome addition to Far Eastern newspaper circles and his wide experience, together with his knowledge of Eastern conditions, is indicative of success in the Philippine field.

BUSINESS NOTES

Messrs. Leigh & Orange have purchased the good will, business and effects of the late William Danby, architect and civil engineer of Hongkong, and taken into partnership Mr. Christopher Boswood Thomas for many years managing assistant to the late William Danby. Mr. Thomas will have charge of the Canton office.

Mr. A. B. Moulder of Hongkong has published a notice to the effect that he has severed his connection with the firm of M. J. Connell and that the firm of Messrs. A. B. Moulder will continue as before with offices removed to 19 Queen's Road Central, Hongkong. Mr. Edward Pond, son of ex-mayor Pond of San Francisco, has joined the firm as partner.

Mr. C. E. Helvie, who has been active for over five years in introducing agricultural machinery into the Philippines, recently returned from America and has taken over the entire interests of the Import Machinery and Manufacturing Co. which represents a large number of leading machinery houses in the United States. His headquarters are at Manila.

OBITUARY

The death of Mr. Arthur Shewan, a prominent resident of Shanghai and brother of Mr. Robert Shewan of Hongkong, is reported by the Shanghai press. The deceased was 54 years of age and had been suffering from pleurisy for some time, but the direct cause of his death was the rupture of a blood vessel while turning over in his cot. Mr. Shewan came to China over 33 years ago and has been identified with firms of Messrs. Turner & Co., Messrs. Shewan & Co. and Messrs. Greaves & Co. He was for many years a prominent member of the Shanghai Race Club.

The sudden death of Captain Robert H. Hatheway of the steamship Mongolia at Shanghai, March 10th, of heart trouble was a shock to the many friends of the deceased officer. As announced in the press, he dropped dead while visiting the office of the Pacific Mail at that port.

The death of Mr. T. Riach, sub manager of the Shanghai Sumatra Co.'s Tanjong Bringin Estate Langkat, is reported, says the *Malay Mail*. Deceased was a very popular Englishman in the island.

The death of Mons. Pokotilof, Russian Minister to Peking, occurred early last month. He retired apparently well and was found by his servant next morning dead in bed. The deceased minister was one of the leading Russian diplomats of his day. He served his country as commissioner at the Plymouth peace conference and served two years as minister to Peking where he was greatly beloved. Just previous to his sudden passing out, he received the promotion to minister of Eastern Affairs at St. Petersburg.

PHILIPPINE RAILWAY CONSTRUCTION

The work of construction on the Philippine Railway Lines in Cebu and Panay is progressing favorably and it is expected that by June they will be completed. The latest reports state that 40 miles are in operation and the line is graded as far as Argao. The construction of bridges and culverts one-third of which are of reinforced concrete are well under way. The second and third class depots have been completed as far south as San Fernando situated about 17 miles South of Cebu and work is progressing rapidly on the balance of this work. Steel, rolling stock and other equipment for the road is on the way.

In Panay the road is open to Pototan a distance of 21 miles and graded for an additional 9 miles. From the terminal of the grade, camps are rapidly being established along the balance of the survey. The work of laying the steel in Panay is slower than in Cebu for the reason that there is no coast line favorable for the receipt of cargoes from boats, and all the material for construction has to be carried over the line as it progresses. The construction of depots in Panay is being pushed rapidly and three of the buildings were ready for roofing while Jara, Barbara and Pavia stations were well along. The storehouses, machine and workshops and locomotive shed are being built in Iloilo and will soon be ready for the roofing. These buildings are all constructed of reinforced concrete with the exception of the coach shed which is just a roof supported by concrete columns. All the piling for foundations is of reinforced concrete.

The Manila Railway Company opened the branch from San Fabian to Camp One giving connection between Dagupan and the Benguet road in time for the summer traffic to Baguio from Manila. This section is laid with 45 pound steel.

The Manila-Antipolo branch is well under way and it is expected that the line will be completed and ready for operation by May 15.

The Florida Blanca line is open to Lubao a distance of 16.5 kilometers.

The Batangas line, running from Manila, has about 25 miles of track laid and the grading is completed for 60 kilometers. The line as far as Los Baños is expected to be open in May.

The section of the Manila-Cavite line connecting the district of Paco with Binacayan, Cavite, twenty kilometers in length, was opened for traffic March 25th. The delay in opening this section was occasioned by the necessity of constructing a large steel bridge over the Pasig, a magnificent structure, built by the Atlantic, Gulf and Pacific Co.

The progress of the work on all the other sections of the different line has been highly satisfactory.

MINE REPORTS

RAUB—The following is the result of work at Raub for the five weeks ending February 29th, 1908, this date being the close of the company's financial year:—

Bukit Koman 4,845 tons crushed, 1,023 ozs. gold obtained, 4.22 dwt. Average per ton.

Bukit Malacca 2,398 tons crushed, 200 ozs. gold obtained, 1.67 dwt. Average per ton.

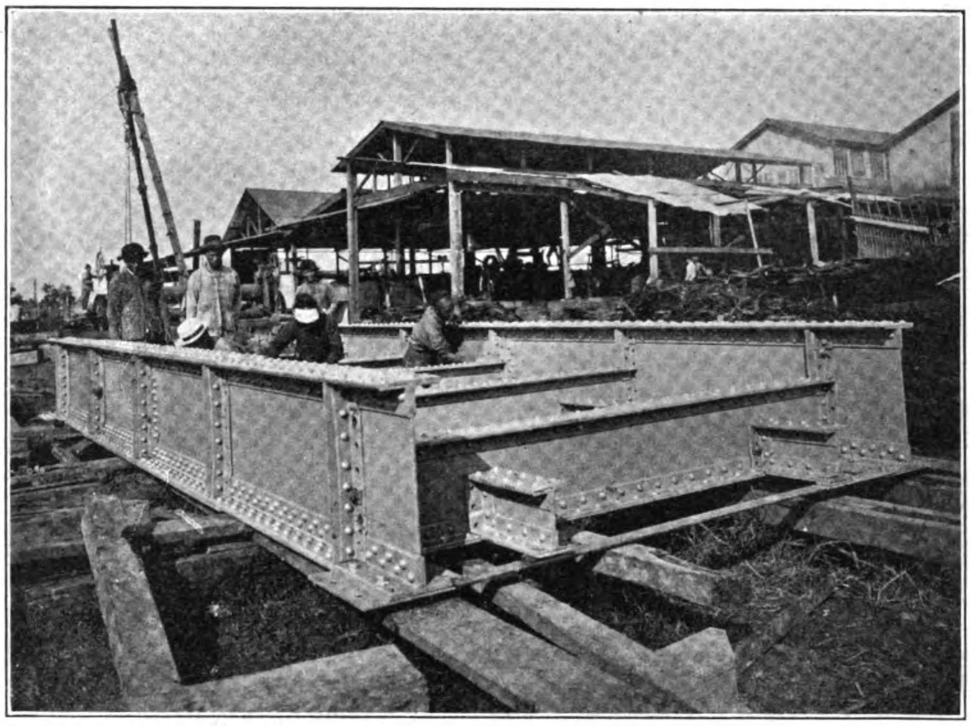
Extra gold from clean up of plates 476 ozs. Gold from cyanide treatment for 17 weeks ending February 29, 1908, 209 ozs. Total 1908 ozs. gold.

Cyanide gold is of same fineness as battery gold. Tonnage of concentrates treated has not been advised.

THE BENGUET CONSOLIDATED MINING COMPANY.—The output of this mine for the month ending March 15 was 105 ounces gold and 60 pounds of cyanide, the latter averaging $25 a pound.

NICOLAS TSU'S ENGINEERING AND SHIPBUILDING PLANT

The modern Engineering and Shipbuilding Plant of Nicolas Tsu is situated on Avenue de Bézaure, South China Bund, Shanghai. The proprietor, Mr. Tsu, is one of the most enterprising Chinamen in Shanghai. Besides controlling the plant referred to, he is compradore for the Banque de l'Indo Chine. The plant is situated conveniently on the banks of the Yangtze, a site specially adapted to the construction of steel lighters, launches, tugboats, steam barges, etc.



VIEW OF NICOLAS TSU'S SHIPBUILDING, ENGINEERING AND MACHINE SHOPS, SHANGHAI

Besides the product of the shipyards, his machine shops turn out machinery of every description and design together with marine and stationary boilers and engines for which there has been created a large demand. Mr. Tsu controls a large number of oil mills which were entirely equipped with machinery constructed at these shops.

Perhaps no plant of its kind in China turns out more work for the Chinese Imperial Customs than that of Nicolas Tsu in the form of lighters, patent buoys, etc.

In addition to these extensive enterprises, Mr. Tsu is the proprietor of a large tile and brick manufacturing plan capable of turning out 2,000,000 brick a month of any size, shape or color.

The contracts handled by this enterprising Chinese contractor are of large volume and include large orders for the construction and installation of steel bridges, etc., which have been handled most successfully, and with the extensive program of railroad building under way throughout China, it is difficult to estimate the increase in patronage that is sure to accrue to this up-to date establishment, that in capacity and modern equipment, is prepared to meet every contingency while the proprietor has the characteristic enterprise that anticipates and prepares for all probable emergencies.

The illustration accompanying this short sketch give some idea of the different department sand the variety and class of work that is daily turned out.

KIANGNAN DOCK AND ENGINEERING WORKS

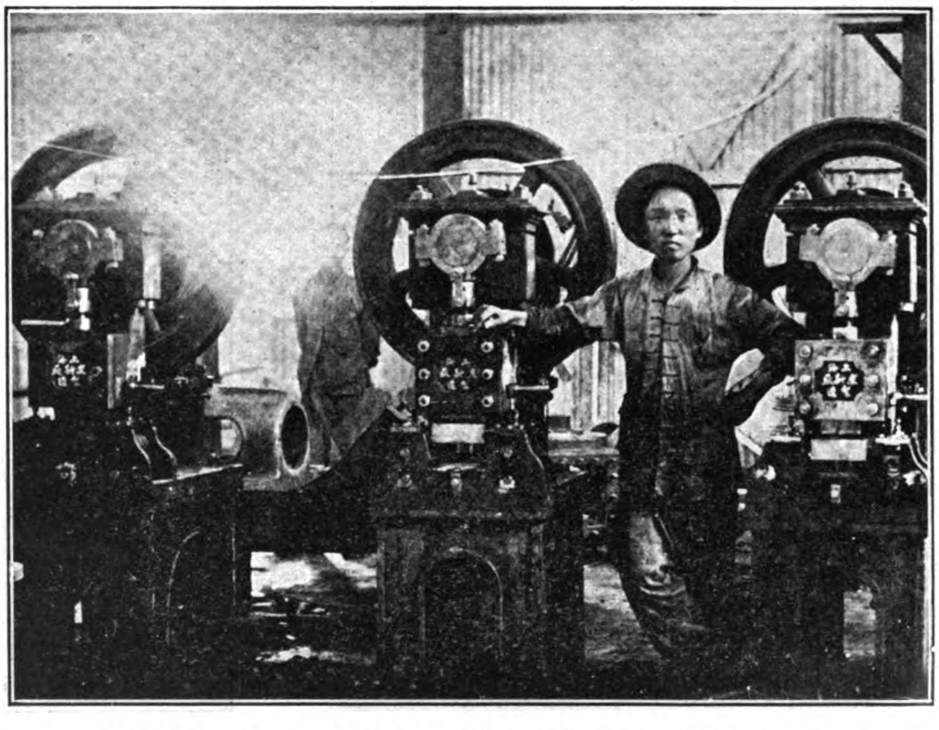
A total of 29 vessels with a tonnage of 3,943 tons and engines with an aggregate capacity of 2,960 H. P. is the record of vessels built and launched by the Kiangnan Dock and Engineering Works at Shanghai for the year 1907 and given in detail as follows:

Vessels & Type.	*Tons.*	*I.H.P.*	*Registry.*
Tsin Tung, steel twin screw towboat	210	550	Tientsin.
An Hai, s. s., police cruiser	170	450	Ch. Govt.
Suiliu, s. s., police cruiser	170	450	,, ,,
Ve Ling, single screw launch	50	130	Shanghai
Li Tung, single screw launch	50	130	,,
Ping Fuh, steel screw towboat	195	550	Hankow.
Ping Chow, steel screw towboat	195	550	,,
Ping On, s. s., cold storage launch	72	150	Shanghai.
Three vessels, S. Hopper barges	408	—	,,
Four vessels, steel lighters	1,613	—	S'hai & T'tsin
Four vessels, wooden barges	580	—	Hankow.
Ten vessels, steel pontoons	230	—	,,

DEVELOPMENT OF FORMOSA

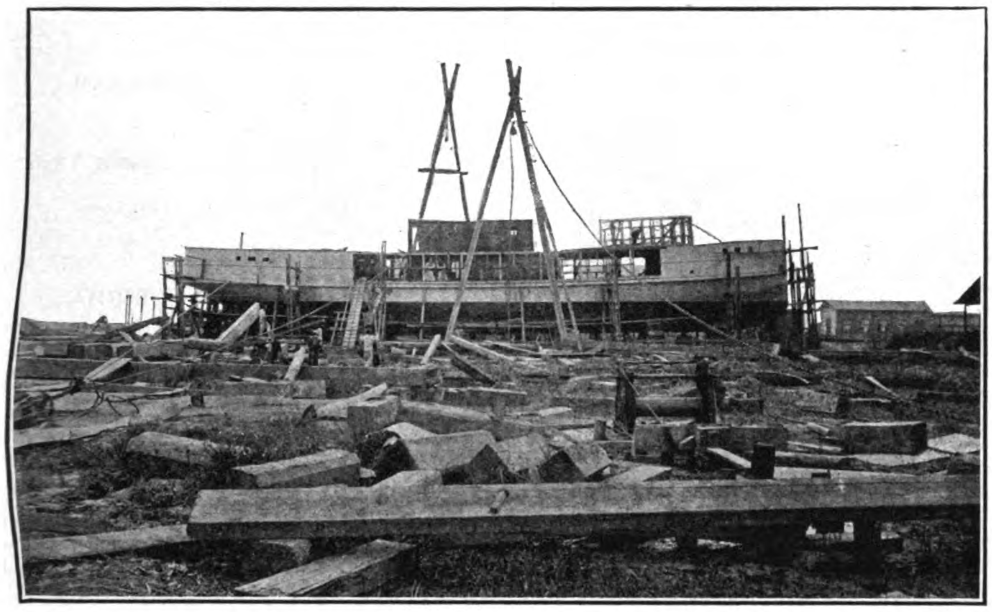
In a recent speech before the Orient Economic Association, Mr. Iwai, Chief of the Civil Administration, is quoted by the *Japan Times* as follows in part:

"Industry is of the most vital importance in bringing to light the luxurious wealth of Formosa. In agriculture the important product of the northern is tea, the annual output of which reaches 5 million yen in value, while the middle districts chiefly produce rice and the south rice and sugar. Coal is not so abundant as expected which fact is greatly regrettable and unfavorable for the industrial development of the island. Still its quality is excellent and output has of late been largely increased, so as to be enough to meet the demand in the island. Highly promising is the working of kerosene, which is of such excellent quality as to scarcely need refining. The Namboku Oil Company is at present working between 10 and 40 koku a day at Byoritsu. Working is still in the infant stage the wells at present measuring only 120 ft. Formosa can boast of the best facilities for industrial enterprise, as the island with a long mountain range running through its middle abounds in watersources which are best fitted for the purpose of water power electric works. The Government-General has decided to start water power electric works of 10,000 horse power at five places together with the new drainage work introduced to the Diet. Water power electricity can be supplied with only one-third of the price of coal and for lighting use it can be supplied at a still less rate. In



MACHINERY BUILT FOR CHINESE MINT BY NICOLAS TSU, SHANGHAI

the neighborhood of Keelung there are three gold mines worked by the Fujita, Tanaka and Kimura Firms. The total investment of these amounts to some 4 million yen and their annual output reaches 2 million yen, that is, one-third of the total value of the production throughout the country. Though the quality of ore is found lately to be rather inferior to those of former days still it is by far superior to other products of the home land. Recently a water power electric works has been started with the view to supply those mines with motor power the work being expected to be completed by the end of this year. In Taipeh there is an ice plant. During the first period of its establishment the authorities granted a subsidy for encouragement. The subsidy was recently discontinued as the manufacture is now conducted by means of electric power which greatly saves expense. Besides this a plan is on the tapis to construct an electric railway at Taipeh. The Government-General has established an experimental tea manufactory aiming at the improvement of the manufacturing system. The current system among the natives is anything but perfect, so that the credit in foreign market is rather unfavorable. If more markets could be found the annual output is to be easily increased to 30 or 40 million yen. In the middle part there is a cotton spinning factory carried by native enterprise and with a capital of 200,000 yen. This is so prosperous that the dividend is regularly declared at the rate of 20% per annum. Several paper mills are established in the Southern districts, and there is a model paper mill worked by the Government-General. The authorities are also going to establish a factory for making caustic soda from salt by means of electric power. However the most important industry in Formosa is the manufacture of sugar. The manufacturing method of the natives is very imperfect but if improved promises to be a profitable and prosperous business. Therefore the authorities concluded to establish a new sugar business bureau aiming at the promotion of the industry. On other hand there is a necessity of improving the way of the planting and cultivation of sugar canes."



VESSEL BEING CONSTRUCTED IN SHIPYARD OF NICOLAS TSU

He also stated that there were four new companies establishing sugar mills besides those in operation, and those will be equipped with the most modern machinery. In addition to the establishing of these mills the companies interested have already constructed 400 miles of light railways for the purpose of transporting materials and supplies.

In connection with this feature of development in Formosa a report from Honolulu of recent date announced that 3,000 tons of sugar mill machinery had been shipped the latter part of January direct for Formosa to equip two of these mills. This material has arrived and is now being installed. The factories are expected complete and operating in a few months.

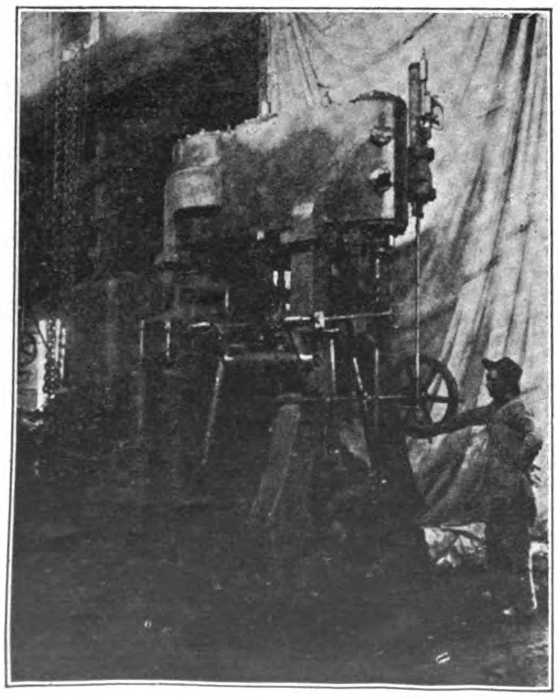
LUMBERING INDUSTRY IN NEW SOUTH WALES

The report of the forestry bureau for the last fiscal year states that 362 forest reserves in the state making an aggregate of 2,429,782 acres were inspected during the year and 591,024 acres recommended for disposal. The total area of the reservations includes over 7,500,000 acres.

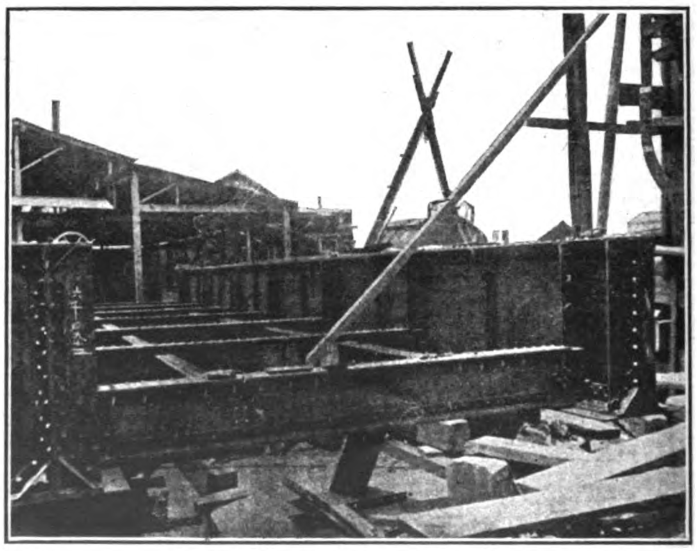
The value of imported timber was $3,498,663, and exported $1 773,663. India took $568,850 worth; New Zealand $508,266; Philippine Islands $155,382; South Africa $113,700; and Germany $78.958. The number of sawmills at work during the year was 338, and the number of persons employed therein 2,642. The value of plant and machinery was estimated at $1,269,231. The output of native timber for logs totaled 119,338,000 superficial feet, valued at $6,057,965.

IRRIGATION IN INDIA

The British Indian government has concluded plans for a gigantic irrigation scheme which will take in the vicinity of three decades to complete and will provide water for the development of the extensive territory now known by the name of the Run of Cutch, made up at the present time of lowlands and salt marshes. This scheme includes the linking of the rivers Indus, Jelum, Chenab, Beas, Ravi and Sutlej, the Punjaub, so as to equalize the flow at all seasons and floods that the entire canal system, when complete, will have the benefit of a regular and adequate supply for all time. Consul General Michael of Calcutta states that there is friction between the railway and irrigation departments which will not tend to bring about the best results as was anticipated in view of the necessity of co-operation in the development of that section of India.



ENGINE FOR STEAMER BUILT IN NICOLAS TSU'S SHOPS



STEEL BRIDGE MANUFACTURED BY NICOLAS TSU, SHANGHAI, FOR THE TCHEKIANG R. R.

FAR EASTERN COMPANY REPORTS

SHANGHAI LAND INVESTMENT CO., LIMITED—A final dividend of 6% making 12% for the year was declared by this company at its annual meeting, with a bonus of taels 2 a share on 78,000 shares. After paying the dividends and transferring Tls. 653,552.21 to reserve fund, a balance of taels 107,547.50 was carried forward to new account.

HELM BROS., LIMITED—At the ninth annual meeting of this company held in Yokohama, a dividend of 10% making in all 17.5% for the year and an additional bonus of yen 1.25 a share was declared leaving a balance of yen 1,682.93 to be carried forward.

EASTERN FIBER CO., LIMITED—The first meeting of this company was held Feb. 28th and the board of directors reported progress in experiments and in initial development.

HONGKONG HOTEL CO., LIMITED—The profit for the year showed a falling off of $14,666 83 compared with 1906. The balance to the credit of profit and loss was $49,252.17 out of which a dividend of 7% was directed paid for the half year; to repairs and renewals account, $7,000, and to carry forward $252.17.

KOBE ELECTRIC LIGHT CO.—This company has declared a dividend of 14% per annum.

BANK OF BURMA, LIMITED—At the fourth semi-annual meeting of this institution a final dividend of 5% was declared The directors' report contained the information that the profit of the bank for the half-year represented 18.5% on the capital and 12.66% per annum since the institution was opened. All the expenses of establishing branches at Madras and Calcutta in addition to the dividends have been met and the working capital of the institution has been steadily increasing.

SIAM STEAM PACKET CO., LIMITED—The balance to the credit of profit and loss for the year ending December 31 was ticals 27,958 39 out of which a dividend of 14% was declared and ticals 1,078 was carried forward to 1908 account.

HONGKONG ICE CO., LIMITED—A final dividend of $15 a share making in all $19 for the year was declared at the annual meeting of this company. The chairman announced that the company had an agreement with the Hongkong Milling Co. whereby provision against outside competition had been made.

SERENDAH HYDRAULIC TIN MINING CO., LIMITED—At the first general meeting of this company a dividend of 27.5% was declared for the first thirteen months' operations. The payment of $10,822.46 directors' fees as provided by the articles of incorporation was the subject of discussion and some objections were made by several shareholders.

LAOU KUNG MOW COTTON SPINNING AND WEAVING CO., LIMITED—The balance to the credit of profit and loss at the end of the 14th year was taels 38,180.08 which was distributed as follows:

To depreciation of mill buildings, reservoir and land improvements, machinery and North Property Chinese Houses and furniture, in all, taels 31,200.26; 10% commission to general managers, taels 671.03, and the balance of taels 6,308 carried forward.

TIENTSIN IMPERIAL HOTEL CO., LIMITED—No dividend was declared by this company for the year. After paying directors' fees, auditors' fees and bonus to general manager, the balance of taels 506.64 was carried forward to working account.

HONGKONG AND KOWLOON WHARF & GODOWN CO., LIMITED—At the meeting of the shareholders of this company, March 14, a final dividend of 3%, making in all 7% for the year, was declared. The report is optimistic and reference is made to the expenditure involved of $671,133.05 incident to the damages by typhoon to the company's property.

REDJANG LEBONG GOLD MINING CO.—At the general meeting of this company at Batavia March 28th, the directors recommended a dividend of 71% for the year 1907 against 52% for 1906. The profit for last year amounted to 2,110,000 guilders and the directors are sanguine that the dividend for 1908 will reach the 100% mark.

SHANGHAI WATERWORKS CO., LIMITED—The directors of this company have recommended the payment of a final dividend of 37s. 5d. a share on the old issue and 30s. 5d. a share on the new issue at the exchange of 2.625 for the year.

TIENTSIN LAND INVESTMENT CO., LIMITED—This company declared a final dividend of 3% making 6% in all for the year.

BANK OF FORMOSA—As a result of the year's business this company paid a dividend of 10% and carried forward yen 118,807 to next account besides yen 150,000 to reserve funds.

PAKNAM RAILWAY CO., LIMITED—This company declared a dividend of 6% for the half year ending December 31, making in all for the year, 14%.

ANGLO-GERMAN BREWING CO.—The net profit for the year amounted to $50,601.01 or approximately 12% on the capital. A dividend of 7% was declared and bright prospects announced for the future of the company by the directors.

SIAM ELECTRICITY CO., LIMITED—A dividend of 6% for the half year ending December 31st, 1907, making 12% for the year and a bonus of 12.5% also authorized, brought the shareholders in all 24.5% for the year.

H. PRICE & CO., LIMITED—A dividend of 10% was declared at the first annual meeting of this company.

ANDREWS, VON FISCHERZ AND GEORGE, LIMITED—At the first annual meeting of this company held at its offices in Shanghai, a dividend for the year of 5% was declared.

YOKOHAMA SPECIE BANK—At the half yearly meeting held March 10th, a dividend of 12 per cent. per annum was declared; yen 550,000 added to the reserve fund and yen 1,091,500 carried forward to next account.

CHINA FLOUR MILL CO., LIMITED—The report for the year showed a balance to the credit of profit and loss account of taels 32,578 76 from which was directed deducted the sum of taels 14,595.65 for managers' fees, depreciation and manager's remuneration, etc., leaving a balance of taels 14,595.65 which was directed appropriated as follows: taels 8,600 95 to write off the whole of the debit balance of reconstruction account and to carry forward the balance.

GEORGE FENWICK & CO., LIMITED—The balance of $3,726.91 to the credit of profit and loss for the year after paying auditor's fees was directed carried forward at the annual meeting held last month.

HONGKONG MILLING CO., LIMITED—The report for the year shows a profit of $161,262.76 for eleven months' operations of which amount $77,034.57 was directed set aside to wipe out the company's debit and to carry the balance to next account.

GERMAN BREWERY, TSINGTAU—At the annual meeting held last month at Shanghai, a dividend of 7% was declared after providing for depreciation and a handsome balance was carried forward to next account. The report of the directors shows a steady increase of business during the term.

PEKING ELECTRIC CO., LIMITED—The credit to profit and loss at the close of the year was taels 11,171.28 of which a balance of taels 1513.70 was carried forward after writing off taels 9,445 82 on plant and taels 51.71 on furniture besides paying taels 150 00 auditors' fees. A reduction of rates to compete with the Chinese company is proposed and a relative increase of business is anticipated during 1908.

CHINA SUGAR REFINERY CO., LIMITED—The report of the general agents of this company shows a loss for the year of $279,371.34 owing to severe competition in China markets; the price remained below cost of production and export to other markets was adversely affected by the high rates of exchange.

CHINA-BORNEO COMPANY, LIMITED—The report of the general manager shows a credit to profit and loss of $108,268 74 which after deducting $4,000 for consulting committee's fees is proposed divided into a dividend of 10% absorbing $55,000, to write off $24,000 and to carry forward a balance of $25,000.

TAKU TUG AND LIGHTER CO., LIMITED—A final dividend of 5% making in all, for the year, 10%, has been declared by this company after providing for general expenses.

CHINA AND MANILA S. S. COMPANY, LIMITED—The report for the year has been far from satisfactory and shows a serious falling off in business. The credit balance to profit and loss is $8,363 62 including $365 67 carried forward from 1906, against $27,365.67 including $6 563.45 carried forward from 1905. Of this balance, $7 328 13 has been written off the value of steamers, moorings, etc., and the balance carried forward.

SHANGHAI ICE, COLD STORAGE AND REFRIGERATING CO., LIMITED—On March 14th, this company authorized the payment of a 3% dividend for the year, ended November 30th, 1907.

SHANGHAI AND HONGKEW WHARF CO., LIMITED—The board of directors of this company have recommended a final dividend of 9 taels a share, making 17 taels in all for the year ending December 31st, 1907.

SHANGHAI PULP & PAPER CO.—The report for the year was very discouraging owing to severe competition. No dividend was declared and the directors' fees were cut in two.

SHANGHAI GAS CO., LIMITED—The report of this company for the year 1907 showed a net profit of taels 248,951.31. A final dividend of 8%, making in all for the year 15%, was declared; taels 2 573 46 directed written off for depreciation of land and buildings, and of plant, taels 67,328.54, etc., and to carry forward taels 6,603.

CHARTERED BANK OF INDIA AUSTRALIA AND CHINA.—The directors of this institution will recommend in their report to the shareholders that a dividend of 15% per annum be declared for the half year, free of income tax; that £25,000 be written off bank premises account; that £50,000 be placed to reserve making it £1,525,000; that £129,483. 14s. 9d. be carried forward as undivided profit and that a bonus of 10% be paid to the staff of the bank.

Tientsin Press, Limited—At the annual meeting held Feb. 28th, a final dividend of 4% was approved, making a total of 7% for the year. The directors' report shows the business to be in the most flourishing condition and Manager Jackson and staff were highly complimented by the shareholders.

Tientsin Native City Waterworks Co., Limited—The directors' report for the sixth year shows a net profit of taels 36 363 56 an increase in water sold for the year compared with 1906 of 17 6% and of profit on working account, 25%. After writing off for depreciation, auditors and directors' fees a dividend of 5% was directed paid and taels 3,816. 6 carried forward to new account.

Soy Chee Cotton Spinning Co., Limited—The balance to the credit of profit and loss at the end of the year was taels 26,129.27, all of which as written off for depreciation of machinery, buildings and furniture with the exception of a balance of taels 1,897.74 which was carried forward. The year's operations were very unsatisfactory owing to depression in the market. The mill was put on reduced production thereby increasing the unit cost.

Tokio Bay Steamship Co.—This company declared a dividend at the rate of 12% per annum for the term.

Jyungi Stock Breeding Co.—A dividend at the rate of 7.3% for the half year has been declared by this company. The company's plant which was first started as an individual enterprise was capitalized last autumn with a capital of a million yen.

Bank of Japan—The net profit for the term was 3,073.357 yen out of which a dividend of 12% was paid.

Yokohama Life Insurance Co.—The net income of this company for the last half of 1907 was yen 12,598.16 and an interim dividend of 5% per annum was declared.

The Deutsch Bank—According to advices from Berlin, this institution has declared a dividend of 12% for the year.

Hokkaido Colonial Bank—At the semi-annual meeting of this institution a dividend of 9% was declared. The net profit for the year in addition to 64,954 yen brought forward from the former term amounted to yen 253,878. Of this amount a balance of 67,478 was carried forward after providing for the reserves and paying the dividend authorized.

Bank of India—This institution declared a dividend of 5% for the half year ending December 31st making in all for the first complete year's business 10%.

TANJONG PAGAR BOARD

The administration report of the Tanjong Pagar Board for the half-year ended Dec. 31st has been issued. The following are important paragraphs:

REVENUE ACCOUNT

The Credit Balance of Revenue Account amounts to $864,968.04 which with the sum brought forward from the previous Half-year, viz., $54,319.16 gives a balance at credit of $919,287.20.

Owing to an error in the previous half-year's accounts the profits for the period under review benefit to the extent of $7,809.39 which really appertains to the previous half-year. After adjustment of this item the profits for the half-year shew an increase of 53,214 25 as compared with those of the previous half-year. This Increase in Profits is accounted for as follows:

Increase in Dock and Workshop Profit	$ 15,030 47
Increase in Prye River Dock Profit	1.290 96
Receipts for Dredging	37 306.27
Decrease in Establishment Costs	22,002.70
Decrease in Repairs and Renewals Expenditure	35,918.60
Decrease in Fees paid to Members of the Board	3,333.33
Sundries	55.54
	$ 114,937.87
Less Decrease in Wharf Profit	61,723 62
	$ 53,214 25

The increase in Docks Profit can be attributed to the more than normal tonnage of several of the vessels docked during the half-year and the consequent increase in Dock Hire receipts, same being $140,468.67 against $102,-149 52, an increase of $38,319.15, the net profit on material and labor consumed shewing a decrease of $23,288 68

The decrease in Establishment Costs is due to a decreased expenditure under most heads such as office salaries, fittings, telegrams, subscriptions, &c., coupled with the elimination of the item in the accounts of the previous half-year for retiring bonuses.

The decreased expenditure on Repairs and Renewals is due to a smaller expenditure under each head except wharves which shew an increase of $9,000.

Six hundred and twenty yards of railway track have been relaid with 60lb. rails.

The reduced amount in respect of Members' Fees follows from the reduction in the number of members from eleven to six as outlined in the previous Report.

The decrease in profit from the wharf follows from a smaller turnover of cargo at the Board's Wharves the tonnage being 596 398 tons against 673,887 tons in the previous half-year. Tugs and Launches, and Lighterage moreover show an increased cost of $16,000 due to the expenses of running an increased fleet.

ALLOCATION OF BALANCE

Of the disposable balance of $919,287 20, the sum of $438,623 has been paid over to Government, as the assumed due in respect of interest on the initial capital cost of the undertaking, the correct account of same not being yet ascertainable. The balance $480, 664.20 is allocated, balance of interest due to Government $100,000; fire insurance reserve $15,000; reserve fund $300,000; carried forward $65,664.20.

RESERVE FUND

$15,101.85 has been set aside as cash in respect of ferro-concrete steel and lead that has been taken partly into stock and partly used. To this fund are carried $8694 28 shares and dividends unclaimed; contributory payments unpaid, $5140.28; surplus coal account $108,980.10. It now stands at $639,735.69, to which is charged new works expenditure $367,430.78 and loans at call $17,456.86.

It is anticipated that this sum together with any surplus Revenue accruing in the next year or two will enable the Board to complete the Centralization of Workshops at Keppel Harbour and other works of a Capital nature not however payable from Loan Funds.

CAPITAL ACCOUNT

During the half-year $124,057.22 has been expended on works the cost of which is payable from loan fund, viz $2382 on electricity supply station; $121,224 on wharf and reclamation at Prye River Dock.

The Comparison of Revenue with previous Half-years since the Formation of the Board.

Half-year		Wharf.	Docks.	Total.
1905	2nd	1,364.971	969,760	2,334.731
1906	1st	1,491.341	1,016,067	2,507,408
	2nd	1.453,823	854,626	2.308,449
1907	1st	1,547.028	1,000.594	2,547,622
	2nd	1,479,684	1,057,645	2,537,329

The net profit during the same period has been as follows:—

1905	2nd	Half-year	$663.319 97
1906	1st	,,	$702,713 45
	2nd	,,	$817,042 85
1907	1st	,,	$803,944.40
	2nd	,,	$857,158.65

WHARVES

The Number of Vessels Using the Wharves and total Net Registered Tonnage of same.

				Tonnage.
1905	2nd	Half-year	1,138 vessels	2,208 774
1906	1st	,,	1,244 ,,	2.327,378
	2nd	,,	1,226 ,,	2.373,626
1907	1st	,,	1,286 ,,	2,331,289
	2nd	,,	1,270 ,,	2,415,921

The summaries of cargo dealt with are:—

1905	(2nd half)	1,112,706 tons.
1906	(1st)	1,219 078 ,,
,,	(2nd)	1,137,029 ,,
1906	(1st)	1,228,970 ,,
,,	(2nd)	1,152,997 ,,

DRY DOCKS

During the half-year 136 vessels (exclusive of the Board's own craft) were docked for repairs and painting giving a total tonnage based on the tonnage in Dock daily of 1,068,-441 Tons.

The actual gross tonnage of vessels in dock were:—

Half-year, June, 1907	175,618
Half-year, December, 1907	157,924

The four Dry Docks were occupied for a total of 446 days as compared with 458 days in the previous half-year.

Paragraphs dealing with new works state that Old No 3 Dock at Keppel Harbor has been completed. The whole of the work on reconstructed No. 1 dock inside the caisson should be completed in a few weeks. Various houses have been completed and commenced. The centralisation of workshops is proceeding, blacksmith's shop, machine shop and foundry, ship-building berths.

NEW WET DOCK AND RECONSTRUCTION OF MAIN WHARF

On the 15th October the Board accepted the tender of Messrs. John Aird & Co. for the construction of a Wet Dock and the Reconstruction of the Main Wharf all in accordance with the conditions and specification of the Consulting Engineers dated June 1907, at a cost £998, 700, the time of completion being 5 years.

Since that date a number of Engineers and Contractors Staff have arrived in the Colony and work has commenced.

The area of the Wet Dock is 24½ acres and provides 3,837 feet of quay wall, also 1,900 feet of pitched slope. The depth of water at L. W. O. S. T. being 30 feet.

The Main Wharf Reconstruction covers a total length of wharf of 4 575½ feet of which 3,144 feet will be in concrete blockwork wall and 1,431½ feet wrought iron cylinder construction, with a minimum depth alongside at L. W. O. S. T. of 33 feet.

NEW GRAVING DOCK, KEPPEL HARBOR

The drawings and specifications which during the the Half Year were being prepared by the Consulting Engineers have since been received.

ELECTRIC POWER STATION

During the Half Year tenders were invited in connection with the Electricity Supply Station to be erected at Keppel Harbor, and since the close of the period tenders have been accepted for a steam generating plant of 1,000 K. W. Capacity.

The Buildings for this plant together with the erection of Condensing Plant, Feed Pumps, and generally connecting up the system will be supplied and carried out by the Board's own staff.

During the Half year 8,000 cubic yards of material from over the site of this station was excavated.

PRYE DOCK

The material for construction of the new wharf at Prye Dock, Penang, has arrived on the spot, and a commencement made on the work.

The reclamation in the rear of the wharf has also progressed, 13,000 yards of filling having been deposited.

The land mentioned in the previous report has since been acquired by the Board.

The accounts do not lend themselves to newspaper publication but they are of much interest. The New Works account shows that the heaviest items are enlargement of Dock No. 1 $48,453. cargo lighters $59,609; east wharf road $11,220; centralization of workshops (about) $210,000.—*Free Press.*

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPHS, ETC.

WIRELESS ON JAPANESE STEAMERS.—The Nippon Yusen Kaisha has placed wireless apparatus on board its six American liners.

HANKOW ELECTRIC LIGHTING.—The German municipality of Hankow proposes lighting the streets with electricity throughout at an early date.

SWATOW ELECTRIC LIGHT CO.—Differences affecting the plans of the company were recently adjusted and after some repairing the system began operation.

CHANG-CHUNG ELECTRIC LIGHTING.—The South Manchuria Railway is preparing to instal an electric light plant and a complete telephone system at Chang-Chung.

ELECTRIC LIGHTING FOR CHAO-CHOW-FU.—The inhabitants of this thriving city of Kwangtung are anxious to secure a modern electric light plant. Japanese are promoting the enterprise.

WIRELESS IN CANTON.—A station each has been established at Canton, Whampoo and Boca Tigris. One of the gunboats has been equipped with apparatus and the new patrol launches will have apparatus installed.

WIRELESS IN CHINA.—Experiments with wireless telegraphy will not be indulged by the viceroy of Canton until the method is perfected on the advice of the foreign superintendent of telegraphs at Shanghai.

PEKING TELEPHONE SYSTEM.—Over two thousand phones have been installed in the Chinese capital and the telephone staff is kept busy making installations and extending the system to accommodate new subscribers.

ELECTRICAL GOODS, IN KOREA.—The introduction of electric fans, flatirons and electric warming pads will be included in the stock of electrical goods carried by the American-Korean Electric Company at Seoul next season.

SHANGHAI PRESS CABLE RATES.—The rate a word for press dispatches charged by the Deutsch-Niederlandische Telegraph Co. from Shanghai is 40 cents gold to New York, 35 cents to San Francisco and 50 cents to points in Holland and Germany.

CHEMULPO ELECTRIC RAILWAY.—This company has received a concession from the residency general to construct a system of electric railways within the corporate boundaries of Chemulpo and has also been granted a permission to increase the capital of the company to yen 150,000.

KYOTO ELECTRIC RAILWAY.—The municipality of Kyoto has secured a charter to construct and operate an electric railway system in that city. The capital required for this work will amount to over 2,500,000 yen which will be raised by issue of municipal bonds. The promoters estimate a net yearly profit of 16%.

ELECTRIC RAILWAYS IN MONGOLIA.—The Tartar General of Charhar, Mongolia, has announced that sufficient funds have been subscribed to construct a system of electric tramways in outer Mongolia and recently submitted a memorial to the authorities at Peking asking for authority to proceed with the construction.

HANKOW ELECTRIC LIGHT WORKS.—The work on the installation of the electric light plant at the mouth of the Han is progressing rapidly. The project is financed entirely by Chinese capital and promoted for the purpose of lighting the native city. A British firm has the contract and only the most modern equipment will be installed. Two British electrical engineers are in charge of the work.

ELECTRICAL INSTALLATION IN KOREAN MINES.—A complete modern turbine electrical generating plant has been installed at the Oriental Consolidated Mining Co.'s mines at Unsan. The reservoir has a capacity of over 111,000,000 cubic feet of water and this is communicated to the generating plant by means of a flume. This plant is capable of operating all the stamp mill machinery and mine hoists.

RANGOON ELECTRIC TRAMWAYS.—This system has been operating with 20 miles of track up to the end of the year and five more miles were practically completed at that time. According to last report it has become necessary to extend the system to meet the growing demand for light and power and for this purpose £100,000 has been provided by special issue of cumulative preference and ordinary shares.

TOKIO STREET RAILWAY CONSTRUCTION.—The Tokyo Railway's new line from Sarugaku-cho, Kanda, to Tomisaka-shita, Koishikawa, via Suido-bashi was completed last month. The line from Hongo to Denzuin-maye, Koishikawa is also complete. The line between Tengenji and Shinobashi, Azabu, is to be completed this month. Of the Shinjuku line the doubling work of the line along Kojimachi will not be completed before June there being many buildings along the street still unremoved. The connection line between Fukagawa terminus and Honjo is to be finished in course of a few months while a part of Hirowo-Ikegami line and the new line between Hanakawado and Yoshinobashi have been already commenced and both lines are expected to be open for traffic by June next.

THE DAI-NIPPON TRAMWAY COMPANY.—Amalgamation has been effected between the following light railway companies:—The Kumamoto Light Railway (capital 400,000 yen), Yamaguchi Tramway (120,000 yen), Hiroshima Tramway (400,000 yen), Ise Light Railway (75,000 yen), Hamamatsu Railway (400,000 yen), Shizuoka Railway (300,000 yen), Atami Railway (240,000 yen) and Shintatsu Railway (500,000 yen). It has been arranged that these companies should be wound up by the end of April when they are to be incorporated into a concern under the name of the Dai-Nippon Tramway Company. The new company will have a capital of 2,500,000 yen, of which 2,335,000 yen is to be taken up by the existing capital of the present eight companies, the remaining 165,000 yen being invited from the public. It is further said that in the event of amalgamation the ironworks conducted by Mr. Amenomiya will be purchased by the new concern.

RAILWAYS AND RAILWAY SUPPLIES

JEHORE STATE RAILWAY.—The section between Gemas and Segamat, a distance of 16 miles, was opened to traffic on March 1st.

SHANTUNG RAILWAY CO.—During the year 1907 this company carried 886,000 passengers and 395,000 tons of freight over its line.

YUET HAN SECTION OPENED.—The second section of the Yuet Han branch railway was opened to traffic the latter part of February.

GERMAN STEEL FOR JAPAN.—Consul Gracey reports that Japan has placed an order for 20,000 tons of steel rails with the German Steel Trust.

TOKKAIDO RAILWAY.—The doubling of this line is expected to be completed by November with the exception of four bridges and two tunnels.

PHILIPPINE RAILWAY COMPANY.—This company recently announced that no more timber for railway construction would be contracted for in Mindanao.

SUNGEI UJONG RAILWAY.—This line will be turned over to the F. M. S. government on the first of July next when important improvements and alterations will be made.

RUSSIAN STEEL FOR JAPAN.—Japanese representatives have been visiting the various steel plants in Southern Russia with a view to placing orders for a large quantity of steel rails.

KIAO-YI RAILWAY.—Arrangements have been completed with the concessionaires of the Tientsin-Pukow Railway, whereby the latter will operate this Chinese road as a branch line.

PEKING-KALGAN RAILWAY CONSTRUCTION.—The chief engineer of this work has been directed to construct a light railway to Petaling for the purpose of carrying supplies to that point.

RAILWAY PAPER.—The Canton-Hankow Railway has announced it will issue a weekly paper in Chinese containing a report of the progress made in construction and other information about the road.

PEKING-HANKOW RAILWAY REDEMPTION.—The Peking authorities are considering the raising of a domestic loan for the purpose of purchasing the Belgian Syndicate's interest in the Peking-Hankow Railway.

SHAOSHAN EXTENSION OF THE PINGHSIANG-SHANTUNG RAILWAY.—This proposed line which will facilitate the transportation of coal to the waterways has received the sanction of the Peking authorities.

INDO-CEYLON RAILWAY SCHEME.—The South Indian Railway authorities have sanctioned the extension of the Madura-Rameswaram railway from Mandapam to Dhanushkodi, the southern point of the island.

MONGOLIAN RAILWAY.—The Chinese government intends to build a railroad to Urga, which lies out of the Kiakhta, the trading post on the Russian frontier. Connection by rail of these two points will be an after consideration.

CANTON-HANKOW CONSTRUCTION SUPPLIES.—The directors of the Canton-Hankow Railway Co. have decided to order 60 construction cars from the Tongshon Railway Works, writes the correspondent of the *Hongkong Telegraph*.

RAILWAY HOSPITALS IN MANCHURIA.—A school of medicine at Mukden and hospitals at Mukden, Liaoyang and Tiehling, to cost in all in the vicinity of yen 500,000, will be established this year by the South Manchurian Railway Co.

MANCHURIAN STANDARD GAUGE.—The single standard gauge track between Dalny and Mukden was completed April 1st and it is expected that the wide gauge will be extended the entire length of the South Manchurian Railway by July 1st.

DOUBLING SIBERIAN RAILWAY.—The Douma is considering a bill providing for the appropriation of 175,000,000 roubles for the doubling of the Siberian Railroad and in addition an appropriation of 31,000,000 roubles for the construction of a new road from Tumen to Omsk.

HONAN RAILWAY CONSTRUCTION.—It has been decided to construct the initial line of this extensive system between Lohyang and Tungkwan and later extend lines to eastern and southern Honan. The sum of $8,000,000 has already been subscribed by the merchants and capitalists of Honan.

SHANGHAI THE TERMINAL.—According to the Shanghai-Hangchow-Ningpo Railway loan agreement the terminal of the line will be at Shanghai instead of Soochow. The British and Chinese Corporation makes the loan under imperial guarantee and the supervision will be practically Chinese.

AMUR RAILWAY CONSTRUCTION.—The Defence and Communications Committees held a joint meeting at St. Petersburg recently and voted in favor of an appropriation of 750,000 roubles to carry out the survey and another appropriation of 13,000,000 roubles for the construction of the first section.

BARNES WINS SUIT.—T. W. Barnes, who filed a claim for one million dollars against the American China Development Company, has been awarded $391,666 by the supreme court of New York. This sum is the amount recognized as his share in the profits for his assistance in securing the contract with the Chinese government.

EASTERN CHINESE RAILWAY.—Freight traffic on this line has fallen off severely since the Japanese secured control of the southern section and as a result the company has sold 2,000 grain cars to the Russian government for use on the lines in European Russia. A government loan of 7,500,000 roubles has been negotiated for the construction of the Ussuri branch of this line.

NEW LOCOMOTIVES FOR INDIA.—The East Indian Railway Company have ordered sixty more locomotive engines from England. Of these 28 are to be bogie passenger engines with tenders of the standard 4-4-2 or Atlantic type; 22 bogie passenger engines with tenders of the standard 4-6-0 or P. class type; and 10 goods engines with tenders of the standard 2-8-0 or G. class type.

CHANGCHINFU-KIRIN RAILWAY CONSTRUCTION.—Late reports are to the effect that construction work will be no longer delayed on this line which is to be built with Chinese and Japanese capital jointly. Each country has appointed its representative and the Chinese government has contributed taels 4,000,000 and granted permission to cut the necessary timber along the routes. The materials will be furnished by Japan.

JAPANESE RAILWAY NATIONALIZATION.—The price of the Fukishima Railway, nationalized, has been fixed at 1,341,431 yen. After substracting the railway loan amounting to 644,271 yen which is to be borne by the Government the remainder will be paid in public bonds valued at 697,200 yen. The price of the Nishinari Railway purchased by the Government has been fixed at 2,184,059 yen, including 1,704,509 yen for railway and 479,550 yen for additional business.

NEW JAPANESE RAILWAY FRANCHISES.—The following new railways have been granted a charter by the Japanese authorities:

Tama Railway, 5 mls. 11 chs., from Sakai station, Kobu line to Koremasa, Kita Tama district, Tokyo (capital 280,000 yen); Tatsuno Railway. 3 mls., from Tatsuno station, Sanyo line to Tatsuno machi, Iho district, Hyogoken (capital 150,000 yen); Aichi Railway, 15 mls. 60 chs., from Chigusa, Aichi district, to Inuyama, Niwa district, Aichi-ken (capital 1,200,000 yen).

NEW INDIAN RAILWAY PROJECTS.—The Railway Board have sanctioned a survey being made by the agency of the administration of the Jodhpur-Bikaner Railway, for a line of railway on the meter gauge from Mirpur Khas station on the British section of the Jodhpur-Bikaner Railway to Jhudo, a distance of about 47¼ miles. This survey will be known as the Mirpur-Khas-Jhudo Railway survey.

Sanction has also been given to a survey being made by the agency of the Bombay, Baroda and Central India Railway Company for a railway on the 2 feet 6-inch gauge from Nadiad to Kapadvanj with an extension to Meghraj *via* Malpur, and a branch from Malpur *via* Lunavada to Godra, a total length of about 112 miles. The survey will be known as the Nadiad-Kapadvanj-Meghraj Railway Survey.—*Railways.*

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

CEBU-TOLEDA ROAD.—The sum of ₱167,600 has been appropriated for the completion of this road which when completed will be 25 miles in length.

CEBU CUSTOM HOUSE.—A bill appropriating ₱200,000 for the construction of a new custom house building at the city of Cebu has passed the Philippine Assembly.

NEW TOKYO HOTEL.—A scheme is on foot to construct a six million yen hotel at Tokyo for the accommodation of visitors to the exposition to be held there in 1912.

JAPANESE OBSERVATORIES.—Branches of the Yokohama observatory office have been established at the following places: Misaki, Manadzuru, Yose, Migo, and Takatsu.

AUSTRALIAN SMALL ARMS FACTORY.—The Australian government will soon advertise for tenders for the construction and equipment of a small arms and ammunition factory.

YALU BRIDGE.—The projected iron bridge across the Yalu to cost yen 2,000,000 was commenced last month and will be built under the supervision of the residency general at Seoul.

ARSENAL AT TIENTSIN.—The Grand Council has directed the viceroy of Chihli to expand the arsenal at Tehchow and to establish a big arsenal at Tientsin. The cost is estimated at taels 16,000,000.

YELLOW RIVER BRIDGE.—This bridge which is to span the river at Lanchou, Kansui province, will cost Taels 165,000. The contract has been let to Messrs. Telge and Schroeder & Co. of Tientsin.

LIAOYANG PUBLIC WORKS.—The South Manchurian Railway Co. proposes spending $200,000 in providing a water supply system, a public park and a theater for the city of Liaoyang during the year.

CHINESE NAVAL BASE.—The authorities at Peking have decided to establish a naval base at a natural harbor situated north of Mirs Bay on the coast of the Waichau prefecture in Kuangtung Province.

KWANTUNG PUBLIC WORKS.—The estimates for the year submitted by the Kwantung government include the sum of Yen 1,679,393 for the construction of roads, bridges, buildings and other public improvements.

SWATOW CATHEDRAL OPENED.—This building which has taken about five years to construct under the direction of the Missions Etrangères de Paris, was opened formally, February 9th. The structure is of chunam, the pillars being cast and built up in sections. It cost $60,000.

HOANGHO RIVER AND GRAND CANAL.—The salt officials of Southern Shantung who have been complaining that the canals were becoming impassable for freight boats will have their petitions recognized and extensive dredging operations for the deepening of these waterways are to be inaugurated.

WHANGPOO CONSERVANCY.—The breakwater across the river at the head of Gough Island is being strengthened and the dredger is kept continually employed at that point. The work of extending the breakwater at the lower end of Gough Island opposite the custom house and the other beyond Prince's wharf at Woosung are being extended and the work generally during the month has progressed favorably.

TIENTSIN WATERWORKS.—The report for the year shows an extension of the system including 12,600 feet of new mains which brings the length of piping up to about 19 miles. An addition of 25 hydrants was made, making the number 155. These extensions provided for the supply of water to the district of Hupeh and two villages to the north-east of the city besides improving the service in the inner city and in the Russian and Austrian concessions.

SEOUL WATERWORKS.—The installation of the water system at this point began in the fall of 1906 and it is expected that it will be completed and ready for operation by September of this year. About 37 miles of steel and cast iron piping necessary for the works were included in the purchase of materials from British manufacturers. The Japanese section of the city has entered into a contract with the company for the supplying of water to the public buildings in that section and for other public purposes.

PAHANG PUBLIC WORKS.—The provision made for public works in the state of Pahang includes a system of sewers for the town of Kuantan which is estimated to cost $33,000 when completed; new port lights and a large sum in the construction of roads and bridges. The total appropriation for public works for 1908 is $98° 025. Of this $330,000 will be spent this year on the Kuantan-Benta road construction which when completed will be 150 miles in length and cost in the vicinity of a couple of millions. This road traverses the most fertile agricultural lands and rich mineral country.

LIAOU RIVER IMPROVEMENTS.—The merchants of the city of Newchang have subscribed about 60,000 taels to be expended in improving the water way. The project includes the building of a concrete dam about 75 miles up the Liaou River from the city where it forks. At the present time the division of the river at this point lessens the depth in the fork that flows to Newchwang. The building of the dam would block up the other fork and turn all the water into the Newchang branch, and provide sufficient depth in the river channel for the operation of vessels up the river. A report on the feasibility of the scheme has been ordered prepared.

BANGKOK WATER SUPPLY.—The Siamese budget for 1908 contains provision for the installation of a modern system of water supply which when completed will cost in the vicinity of 3,000,000 Ticals. With the exception of a few details, the plans have been outlined. They provide for a source of supply in the river at Chiengrak, the filtering and the carrying of the water by canal to the city and for its economical distribution to all parts of Bangkok. Pressure will be obtained by the erection of water towers. The work will be carried out under the direction of the engineering division of the sanitary department, says the *Bangkok Times*.

SHIPBUILDING, GENERAL MARINE, FISHERIES, ETC.

HOKKAIDO HERRING CATCH.—The total catch reported for 1907 was 515,202 koku, a decrease from the previous year.

HANYANG IRONWORKS WHARF.—This wharf which is situated on the Pooting side of the river and recently completed is now in use.

MORE U. S. TRANSPORTS.—The purchase of the steamers *Shawmut* and *Tremont* of the Boston line by the United States to be used as transports is being considered at Washington.

MERGUI PEARL FISHERIES.—The total returns from these banks for the year 1907 were 89 tons of mother-of-pearl valued at Rs. 91,469 and three tons less than the previous year, although prices were higher.

AOMORI-VLADIVOSTOK LINE.—The merchants of Aomori have interested the O. S. K. in the opening of a direct line from that port to Vladivostok. This service will be maintained from April to November each year.

STEEL BOATS FOR HUNAN.—The Hunan authorities are experimenting with some steel craft of Japanese construction and built in three sections each in their use for expediting transportation across small rivers in active military operations.

CHEFOO NAVAL SCHOOL.—Chinese and foreign teachers are being engaged to take charge of the naval college to be opened at Chefoo. It is understood that over 80 students belonging to the better class have signified their intention to take the course.

CHINESE GUNBOATS COMPLETED.—The last of the four gun-boats built by the Kawasaki Dockyards was delivered, the latter part of February. The two torpedoers for the Hupeh squadron also being built by the Kawasaki yards were expected completed early this month.

NEW VESSEL FOR THE STRAITS.—The Straits Trading Company has placed an order with the Caledon Shipbuilding Co. of Dundee for the construction of a vessel which will be of the same type as the Kinta. It will be christened the Ipoh and is expected to arrive in July.

JAPANESE IMPERIAL RAILWAY STEAMERS.—The *Hirafu Maru*, one of the two turbine driven steamers of 1500 tons purchased to connect the railway terminals at Aomori and Hakodate, has been put in commission and found most satisfactory. She has a speed of 18 knots.

NORTH GERMAN LLOYD SUBSIDY.—As an inducement to establish a regular monthly service between Sydney, New Guinea, Hongkong and Japan and in addition, to resume the New Guinea and Singapore service, an additional subsidy of £25,000 a year has been granted the company.

PEARLING IN DAVAO GULF.—The *Mindanao Herald* announces that a fleet of fifteen luggers are operating at the pearl banks, recently discovered in the Samal Straits which separates the Island of Samal from the town of Davao. A ton of shell has been gathered by one of these luggers in five days' operations, but few pearls have been found.

NEW BUND AT WUHU.—The foreign steamship companies have secured the following concessions along the bund of the new international settlement at Wuhu on the Yangtze:

Messrs. Butterfield & Swire secured 1,137 feet; the Hamburg-American line, 900 feet; Jardine, Matheson & Co. has gained rights to 605 feet, while the Japanese Nippon Yusen Kaisha controls 500 feet.

JAPANESE GEODETIC SURVEY.—The charting of the coast of Japan and adjacent territory is being carried on by the Japanese naval authorities. The coast of Korea is now engaging attention and the work will be completed by the end of the year, after which it is expected that the following program will be carried out: Formosa and Yetrof, complete 1910; Saghalien, the seven isles of Idsu and the rest of the Kuriles to be completed in 1920.

SHIPBUILDING IN BRITISH NORTH BORNEO.—During the year 1907, The China Borneo Company's yards turned out five lighters and four launches besides the repair work. The North Borneo Trading Co.'s yard has three lighters and one river boat to its credit besides extensive repair work and overhauling. The company has now in hand a 500 ton schooner which when completed will be the largest vessel built on that coast, says the *Herald*.

AMUR GUNBOAT FLOTILLA.—The sum of 20,000,000 roubles will be expended by the Russian government in the construction at the Baltic and Sormovsky shipbuilding yards of two different types of shallow draught gunboats. For the mouth of the Amur, heavier and larger vessels have already been built. The upper waters of the river will be patrolled by the lightest of the craft and the medium draught for the lower waters. It is understood that the flotilla will be completed by 1910.

JAPAN'S MARINE PRODUCTS INDUSTRY.—The total value of export of these products for the year 1907 amounted to yen 12,933,131, an increase of over a million and one-half yen over the previous year. The chief exports are dried cuttlefish, kombu(seaweed), cut seaweed, isinglass (colle-vegetable), dried earshell, fish and whale oil, dried lobster, trepang (beche-de-mer), pedicle, coral, codfish, shark fins, sardine, dried bonito, salted fish, shell fish, oyster, canned fish, canned sea-ear, salt and others. Besides these last year 103,209 yen worth unrefined iodine and 156,067 yen worth iodine potash were exported as drugs to the amount of at least 600,000 yen. More than 400,000 yen of seal fur was also exported last year.

MINES, MINERALS AND THE METAL TRADE

KWANTUNG MINES.—All mining enterprises in this province will be under control of a semi-official company.

URGA GOLD MINES.—A Russian mining engineer has petitioned Peking for a license to develop gold deposits at Urga, Mongolia.

SHANTUNG MINING COMPANY.—Advices from Berlin announce that the capital of this company has been increased by three million marks.

RAUB AUSTRALIAN OUTPUT.—For the four weeks ending February 17th, the yield including the cyanide output amounted to 1908 ounces of gold.

NEW INDIAN COAL DEPOSITS.—Prospectors report extensive coal deposits near Nagpur, India, and preparations have been concluded for an extensive reconnaisance.

PAHANG TIN EXPORT.—For the month of January the export of block tin and tin ore amounted to 3,329 piculs compared with 2,170 piculs for the corresponding term, 1907.

NEW PAHANG TIN MINING COMPANY.—The Samantan Tin Mines Co. has been registered in London with a capital of £50,000 for the purpose of acquiring the Samantan mining property in Pahang.

FUSHUN COAL.—The demand for the output of these mines is reported to be increasing throughout Manchuria. The Samshu breweries are using the product and will consume several thousand ton a year.

HAINAN MINING CONCESSION.—Mr. Foo Choo Choon the well-known mine owner of the F. M. S., has secured a concession for the control and development of rich gold mining concessions in the island of Hainan.

COAL IN TOLOSAN ISLAND.—German capitalists have organized to develop coal deposits found on the island of Tolosan, situated opposite the port of Kiau-chou. Other minerals are reported in large quantities on this island.

PONTIANAK COAL CO.—This corporation has been registered at Batavia with a capital stock of 250,000 guilders. It is the purpose of the company to develop and operate coal mines in Dutch West Borneo. Several concessions at Salimban have been secured by the company.

MINING IN WESTERN SIAM.—A great deal of prospecting is being carried on in western Siam and at an early date the Royal Department of Mines will extend its operations to these provinces so as to be in a position to entertain applications and otherwise encourage development.

MINERAL OIL AT LABUAN.—A new oil spring has been discovered on the island of Labuan. The samples have been submitted to the Borneo Company Limited and an investigation will be made to ascertain the value of the prospect. The oil has the odor of kerosene and burns freely.

BORNEO COAL.—The product of the Silimpopon mines in British North Borneo is finding a steady demand at Sandakan where a coal wharf and depot has been built. Steamers calling at that port have found the product satisfactory and the mines are kept busy supplying the market.

VICTORIA GOLD YIELD.—The report for the year 1907 shows an output of 754,270 ounces, worth approximately £3,017,080, a decrease in production of 80,505 ounces from the preceding year. The aggregate value of gold production from this state since the discovery is £279,-592,680.

MONGOLIA MINERAL WEALTH.—A party in charge of a German engineer and a Japanese engineer and comprising twenty students from Hupeh has been directed to make a survey of Mongolia for the purpose of making a complete report on the mineral wealth and the most desirable methods for its development.

SIBERIAN MINERAL DEPOSITS.—Iron, copper and sulphur deposits have been discovered in the mountain region on the island of Shantar situated at the extreme north of the Udsky district, north of Primorya. In one section of the island referred to, three valuable springs of mineral water have also been reported.

I-HSIEN COAL MINES.—The Chung Hsing Coal Co., capital $200 000, operating in southern Shantung, has declared a dividend of 10% for the year. This plant has a daily output of three hundred tons. The completion of a railway to connect with the Imperial canal will give a great impetus to the operations of this company. Chinese and German capitalists are interested in this project.

OIL CONCESSIONS IN KOREA.—Japanese and American capitalists have secured a concession of 8,000 acres of land near Pyeng Yang for the purpose of prospecting and developing deposits of oil and natural gas in that region. It is understood that the concessionaires are so sanguine of success that they have already applied for a franchise to supply the city of Pyeng Yang with gas for lighting purposes.

CHINESE AND THE USE OF COAL FOR FUEL.—In view of the ignorance among the natives in regard to the economical use of coal for fuel, the Chinese Engineering and Mining Co. has open up an office in charge of an expert for the purpose of teaching the Chinese how to construct grates and stoves which will burn coal to advantage. This information is given without charge, says the *Peking and Tientsin Times*.

JAPANESE COAL DEALERS' GUILD.—The *Nagasaki Press* announces the organization of a guild among the coal dealers there, exclusive of the Mitsu Bishi Goshi Kaisha and the Mitsu Bussan Kaisha, and which states that its purpose is to give better service to customers and to develop trade, incidentally to promote the prosperity of Nagasaki. The *Press* expresses the hope that it is not the signal for an advance in price.

HANKOW STEEL PLANT.—The expenditure of six million dollars of Chinese capital in the construction of steel works at Hankow is interesting the large steel manufacturers of Europe and America. Inquiries have been received at the principal steel manufacturing centers with a view to placing orders, where the best and most economical service may be secured. The prospects for this plant are believed to be bright in view of the proposed railway development in China.

NEW CHINESE REGULATIONS FOR MINING REVOKED.—The protests of the powers against the clauses of the recent code adopted by Peking, which requires the prospector to leave the working of his prospect to the land owner or the government at the latter's option or to turn over one-half of the output to the government, if he worked it himself with the payment into the coffers of the state of an additional one-tenth of the net profits, have been favorably considered at Peking and the regulations have been revoked

Indian Mineral Products.—The report for the year 1906 recently made public gives the returns available from all sources, and places the production of minerals at approximately £6,312,818 an increase of over 10% compared with the previous year. Of this amount Mysore contributed gold to the amount of £2,230,284; coal comes next with a production of 9,783,250 tons, of which Bengal contributed 8,617,820 tons, giving a total value of £1,912,042, an increase over the previous year of 34%. In addition to these figures it develops that India is fast assuming the position of the leading producer of high grade manganese ore. In 1906 the production amounted to 495,730 tons against 253,896 tons in 1905. The value of this ore on the market was £435,268 and the prospect for 1907 much brighter.

FINANCIAL AND MISCELLANEOUS

Printer's "Leads" of Rubber.—The India Rubber Journal states that rubber has been used successfully in the manufacture of "leads."

Rubber in Sumatra.—There are over 20,000 acres under cultivation for rubber on the East coast of Sumatra and prospects of a marked increase in 1908.

Dalny Beancake Trade.—During the last three months over 150,000 tons of beancake have been received from the interior of Manchuria at Dalny.

New Rubber Company.—The Harpenden Rubber Co. has been incorporated with a capital of £30,000 for the purpose of acquiring the Harpenden Estate, Kapar, Selangor.

Chinese Maritime Customs Receipts.—The report for the year 1907 shows taels 33,500,000 collected, a falling off compared with the preceding year of taels 2,560,000.

Moji Trade.—The trade of this port has increased since 1900 from export, 5,698,947; import, 3,446,286 yen, to export, 18,005,642 yen; import, 27,448,354 yen in 1907.

Opening of Kalgan to Foreign Trade.—Surveyors have been sent to Kalgan to survey the foreign settlement there in view of the opening of that city to international commerce.

Sugar Beet Culture in Korea.—Twelve tons of beets to the acre and ten per cent. sugar is the report made by the Japan Korean Sugar Milling Company. The company supplies the seed and the farmer gets 50% of the yield.

Burma Forest Reserves.—The area of reserved forests in Burma, at the beginning of the year 1906-07, was 20,534 square miles and at the close of the year it stood at 21,575 square miles. The area of unclassed forest at the close of the year was 108,965 square miles.

Chinese Tea Plants.—The tea merchants of Kuangtung, Hankow and Fukien are in need of modern tea manufacturing plants and an effort is being made through the Chinese representatives in foreign countries to persuade Chinese merchants there to subscribe capital for the purpose.

St. Louis Gold Medals.—Messrs. Inchausti & Co of Manila have received six gold medals on their exhibits which included the product of their rope works, vegetable fiber other than cotton; sugar in raw state; confectionery, etc., liquors and distilled spirits and commercial alcohol.

Java's Census Returns.—The returns for the census taken in 1905 have been published and show a native population of 30,000,000, an increase of only 5% over 1900. Included in the report were Europeans, 64,917, an increase of 4% in the five years and 295,193 Chinese against 277,265 in 1900.

Australian Colonist Enterprise.—The Christian Colonists, Limited, with a capital stock of £1,000,000, has been organized in Adelaide, South Australia, and has for its purpose the establishment of a Christian colony at some point in connection with the proposed Australian trans-continental railway scheme promoted by J. T. Moate.

Machinery Trade in Manchuria.—Consul Greene of Dalny calls attention to the opportunity for introducing machinery for threshing beans, and manufacturing oil and beancake in Manchuria. He advises that actual demonstration of the effectiveness of the machinery on the ground would prove the most successful scheme to introduce it.

The Kiso Kogyo Kaisha.—Baron Shibusawa, Mr. Soichiro Asano and others have organized a new company styled the Kiso Kogyo Kaisha or Kiso Industrial Company with a capital of 600,000 yen. The company's object is to engage in felling and sawing timber from the rich forestry of Kiso. It will also carry on the paper milling business.—*Japan Times.*

Chinese National Bank.—The opening of this institution, which is being organized by the board of posts and communications, has been set for about June 3rd, after the Chinese Dragon Boat Festival. Branches will be established in foreign commercial centers and the management chosen from graduates from the schools of Great Britain and America.

Formosan Sugar Company.—The Formosa Sugar and Development Company has been registered in London with a capital of £80,000 in 60,000 £1 preference and 40,000 10s. ordinary shares. It is to acquire the sugar mill and factory known as the Hing Hoat Seito Kaisha, village of San Kan Ten, district of Ni Bu Tai Ri, Province of Tai Nan Cho, South Formosa, and all or any of the assets and liabilities of A. W. Bain, H. W. Arthur, and H. Hastings (trading as Bain and Co.).

Chino-Siam Bank.—The firm of Messrs. Yoo Seng Heng & Co. of Bangkok, bankers, have issued a prospectus for a banking company to be known as the Bengk Chin Siam with a capital of ticals 3,000,000 which will take over the business of the Chinese company with its working capital of ticals 500,000. It is also proposed to have a savings bank department in the new bank. The prospectus announces that the firm found it impossible to handle the increased business with its present capital.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

	Unit	U. S. Currency.
Abrasives.—		
Bort, good drill quality	carat	$ 85 00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2 00
Acids.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18 00
Aluminum, Sulphate Com'l	lb	1.25-1 75
Antimony, needle	"	.05-.065
Arsenic, white	"	.045-.05
Asphaltum.—		
Trinidad	ton	28 00-30.00
California	"	51.00-27 00
Bleaching powder, 35%	100 lb	1 25-1.40
Blue Vitriol	"	5.50
Bone Ash	lb	.02⅝-.04
Borax	"	.045-.0 525
*Caps detonating	M	7.50
Cement.—		
Portland, American	500 lbs. bbl	1.55-1.60
Foreign	" "	2.25-2.90
Rosendale	300 " "	.85
*Green Island	375 " "	2.65
*Alsen		2.75
*Dromedary		2 50
*Rizal		2.50
*Independencia		2.50
Clay, China.—		
American common	lg. ton	8 50-9 00
Foreign	"	10.00-17.50
Coals.—		
*Japanese		5 25
*Australian		5.50
Copper	lb	.16½-.16⅞
Dynamite 40%	"	20
Redspar ground best	sh. ton	14 00
Brick, American	M	30.00-40 00
imported	"	30.00-45.00
Fire clay, St. Louis Mill	ton	2 50
*Fuse-Blasting	1,000 ft	7 50
Graphite-American ore, common	lb	.01-10
Artificial	lb	.06
Gypsum-Fertilizer	sh ton	7 00
Powdered	sh. ton	12 to-20
Lead	lb	.03½-04½
Magnesite-Greece, crude, 95%	lg. ton	8.00-10 00
Bricks, domes	per M	160-200
Manganese, pure, 98-99%	lb	.06
Ore, 80-85%	sh. ton	20.00 to 50.00
Mercury, export flask	75 lbs	36.00 39.00
Paints and Colors.—		
Litharge American P'w'd	lb	.06½-.06⅞
Ochre, Am. Com	sh. ton	8 50-9.00
Paris green pure, bulk	lb	26
Turpentine, spirits, bbl	gal	.44½-45
White lead, Am. dry	lb	.05⅞-06
Am. in Oil	"	.06½-06⅞
Zinc, white, Am. extra dry	"	.05⅝-.05½
Phosphates, Acid.	per unit	65-.70
Florida hard rock	lg. ton	10.25-10 50
Land pebble 68%	"	5.25-5 50
Potassium Cyanide (98-99%	lb	18-19
Platinum	oz	27 00-29 50
Platinum, Scrap	oz	20.00-21 00
Spelter	lb	053-.055
Nickel	lb	.045-06½
Cobalt unrefined	"	.20-.45
*Powder, black blasting A	lb	.1½
*Judson	"	.180
Pyrite, Domestic Non-arsenical, lump	unit	.11-.11½
Imported non-arsenical lump	"	.13-13½
Imported, arsenical	" "	12-13
Saltpeter crude	100 lbs	4 50-5 00
Silica, Lump quartz	lg. ton	5 00-6 00
Ground quartz, ordinary	"	13 00-15 00
Glass sand, ordinary	"	2 75
Silver	oz	.61⅞
Sodium cyanide (100% KCN)	lb	.18-.19
*Steel, octagon drill	lb	.14
Sulphur, Louisiana prime	lg. ton	22 00
Roll	100 lbs	1.85-2 15
Flowers sublimed	"	2 20-2 60
Talc—Domestic	sh. ton	15 00-25.00
Italian, best	"	35.00-40.00
Tin	lb	.42
Zinc,	"	.15
Dust	"	.05-.06⅞

*Manila quotation.

HEMP STATISTICS, 1st APRIL, 1908.

(Courtesy of C. S. Nicholson, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 31st March 1908		185,639 *Bales.*
Arrivals of hemp at Cebu up 31st March 1908		65.593 *Bales.*
		251,232 *Bales.*
Stocks on hand in Manila and Cebu on 1st January, 1908		129,359 *Bales.*
Total		380,591 *Bales.*
Export to all ports to date 31-3-08	218,800 *Bales.*	
Local consumption estimated at	1,200 "	220,000 *Bales.*
Total stocks at Manila and Cebu on 1st April, 1908		160,591 *Bales.*

EXPORT OF HEMP, MARCH, 1908.

Date		Vessel	London	L'pool	Atlantic U. S.	Pacific East California	Continent.	Australia	Other Pts.	Bales
Mch		Fwd:—	44,670	25,498	37.371	7,538	10,044	2,508	5,889	133.518
"	1	Teenkai.....Cebu.	2,331	400			450			3,181
"	"	Shimosa.........do.			9,893					9,893
"	"	Yuensang	1,525				50		50	1,625
"	3	Zafiro	1,475				780		600	2,855
"	"	Tean	261				375			636
"	4	Teenkai	2,850				2,350			5.200
"	6	Loongsang	300	450			292			1,042
"	7	Rubi	650				1,250		1,150	3,050
"	"	Manila							10	10
"	9	Prinz Sigismund.						524		524
"	"	Indiani			4,731					4.731
"	"	Tremont.				962			718	1,680
"	12	Taiyuan						200		200
"	13	Yuensang							150	150
"	"	Nikko Maru							300	300
"	"	Teucer				1,107				1,107
"	14	Zafiro	2,050						500	2,550
"	16	Kennebec			6,940					6,940
"	"	Sungkiang..Cebu.							150	150
"	17	Alicante		1,361			125			1,486
"	18	Tsinan						340		340
"	"	Louqsor	2,503	1,051			550			4,104
"	20	Loongsang	55				3			58
"	21	Rubi	1,900				100		450	2,450
"	24	Yawata Maru						583		583
"	25	Empire							28	21
"	27	Yuensang	2,321				100		150	2 578
"	28	Zafiro	2,300	1,500			200		850	4.850
"	30	Lougsor......Cebu.	2,074	340			800			3,244
"	"	Kennebec.......do.			13,820					13,820
"	"	Palma...........do.	2,900	1,100			700			4,700
"	"	Kaifong.........do.							18	18
"	"	Prinz Waldemar							730	730
"	"	Manila						10		10
"	31	Tean	316						150	466
			70,481	31,730	72,755	9,607	18,169	4,165	11,893	218,800

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for March, 1908.

STOCK.	WHEN ESTAB-LISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	g £1,500,000 s $13,500,000 i $250,000	$2,000,387	31-12-07	Final of £2 on old and £1-10/- on new shares for ½ year ending 31-12-07	5½	$695 £75-10
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £12,735 $300,000	$71,293	31-12-06	$2 (London 3/6) for 1903	....	$51
Russo Chinese Bank	18	Rbs. 15,000,000 Tls. 2,000,000	80,000 16,000	Rbs. 187½ Tls. 125	Rbs. 187½ Tls. 125	g Rbs 7,130,500 s Rbs 2,000,000 s Tls. 800,000	Rbs 41,000	31-12-06	9 per cent.	....	Tls. 175
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $219,058 u $401,959	Nil.	31-12-06	$20 for 1906	8½	$240
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 100,000 f Tls. 48,942	Tls. 204,424	30-6-07	Final of 7/6, per share making in all 15/- for 1906 (Tls. 2.65)	6	Tls. 83 sellers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £70,000 f $456,407 j £125,137.15 u $817,628	$1,460,490	31-12-06	Final of $12 making $42 for 1905, and interim of $30 for account 1906	5	$840 sales
Yangtsze Ins. Association, Ld. do. do. (new)	1862 1907	$1,040,000	8,000 4,000	$100 $100	$60 $60	$850,000 j $159,143 $1,988	$394,520	31-12-06	$12 for year ending 31. 12. 05	....	$152½ buyers $140 buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $346,097 f $13,802	$372,432	31-12-06	$6 and bonus $2 for 1906	9	$89
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,323,941	$428,047	31-12-06	$27 for 1906	9	$295 sales
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$365	31-12-06	$1 for 1906	....	$12
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $96,988	Nil.	30-6-07	$4 for year ended 30-6-07	10	$40
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $575,000 f $75,279 $20,000	$16,437	31-12-07	$1½ for 2nd half year making in all $2½ for year ending 31-12-07	7¾	$29 sales & b.
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£60,000 i £270,000	£3,694	31-12-06	5/- @ ex. 2-2¾=$2.24 per share for 1906	3½	$39 $27
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-06	Final of Tls. 1¾ making Tls. 3½ for 1907	7¾ 7½	Tls. 45 sellers Tls. 49 sellers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£400,000 i £1871	£172,370	31-12-06	Interim of 1/- (Coupon No. 8) for a/c 1907	4½	44/6-
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $32,957	$137	30-4-07	$1.00 50 cts. for year ended 30-4-07	3½ 3½	$28 buyers $14 buyers
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 419,479 e Tls. 82,000 i Tls. 81,200 q Tls. 30,000	Tls. 18,730	31-12-06	Final of Tls. 2 making Tls. 6 for 1906	....	Tls. 47 buyers
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	o $345,741 e $450,000 r $56,848	$9,218	31-12-06	$8 for year ending 31-12-06	...	$110 buyers.
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	Dr. $138,523	31-12-06	$3 for 1897	....	$15 sales
Perak Sugar Cultivation Co., Ld.	....	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 8,935	31-8-06	Tls. 4. (8%) for year ending 31-8-06	5	Tls. 80 sellers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £150,000 h £54,390	£11,556	28-2-07	Final of 1/6 - Making 3/- for 1907 (Coupon No. 9)	7¾	Tls. 14 buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	Dr. £11,358	31-3-07	No. 12 of 1/-=48 cents	....	$8
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	s 18,000	$25	$25	$53,601	$3,726	31-12-06	$1¾ for year ending 31-12-06	....	$14
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000.000	60,000	$50	$50	$550,000 t $26,806 i $40,000	$3,556	31-12-06	Final of $1½ making $3½ for 1907	6½	$53 sales
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500 000	50,000	$50	$50	v $50,000 $100,000	$441,442	31-12-07	Final of $4 making $8 for 1907	8	$98
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 10,459	30-4-07	Int. of Tls. 2½ for 6 months ending 31-10-1907	7½	Tls. 80
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	14) 36,000	Tls. 100	Tls. 100	b Tls. 487,210 r Tls. 100,000 p Tls. 190,100 e Tls. 75,000	Tls. 23,117	31-12-06	Interim of Tls. 8 for a/c 1907	8½	Tls. 214 buyers
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 6,531	29-2-08	Tls. 6 for year ending 31-10-07	6	Tls. 100 ex. div.
Astor House Hotel Co., Ld.	1901	$750 000	4) 30,000	$25	$25	$30,000	$10,908	30-6-07	$2½ for year ending 30-6-07	10	$22½ buyers
Astor House Hotel, Ld. (Tientsin)	---	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-06	20 per cent. for 1906	....	Tls. 70 sellers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1 000	$9,178	31-12-06	$1.80 for 1906	....	$12
Hongkong Hotel Co., Ld.	1866	$600.000	12,000	$50	$50	$648,975 r $36,075	$10,925	31-6-07	$4 for 1st half-year ending 30-6-1907	7¾	$98
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50.000	$100	$100	e $250,000	$36,915	31-12-07	Final of $3½ making $7 for year ending 31-12-07	7	$100 sellers.
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $217,426 e $50,000	$4,621	31-12-07	70 cents for 1907	7	$10 sales & b.

FAR EASTERN STOCKS AND QUOTATIONS—(CONTINUED.)

STOCKS	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$653	31-12-07	$1¾ for 1907	7	$25
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78.000	Tls. 50	Tls. 50	Tls 1,523.045 e Tls. 170,000	Tls. 107,547	31-12-07	Final of Tls. 3 & bonus of Tls. 2 making in all Tls. 8 for 1907	7¾	Tls. 106 sales
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 71,685	Tls. 811	31-12-07	Final of Tls. 3 making Tls. 6 for 1907	6¼	Tls. 96 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,541	31-12-07	Final of $2.10 making in all $4.10 for year endg. 31-12-07	8½	$48 buyers
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 23,276	Tls. 8,807	31-10-07	Tls. 2½ for year ended 31-10-07	4¾	Tls. 54 sales
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $60,000	$14,269	31-7-07	50 cents for year ending 31-7-07	5½	$9 buyers
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 85,519	30-9-07	Tls. 6 for year end. 30-9-06 (8%)	....	Tls. 55 sellers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 6,308	31-12-07	Tls. 8 for 1906	....	Tls. 75
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	....	Tls. 270
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12/6	£1,299	£638	31-12-06	1s. 3d. for 1906	9	$ 7½
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$25 000	Nil.	26-3-08	$1.20 for 1907	....	$11¼ sales
China Flour Mill Co., Ld.	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 50,000	Tls. 5,995	31-12-07	Final of Tls. 5 making Tls. 10 for 1905	....	Tls. 48 buyers
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17) 50,000	$10 $1	$10 $1	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$5½
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$120,000	$3.593	31-12-07	80 cents for 1907	9	$9 sales
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	i $60,000 $5,000	$2,974	31-7-07	$1.30 for year ending 31-7-07	7¾	$17
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$11,000	$10,804	31-12-06	Interim div. of 50 cents per share for % 1907	8¾	$11½
Hall & Holtz, Ld	....	$420,000	21,000	$20	$20	$186,000	$15,002	28-2-07	$2½ for year ending 28-2-07	9½	$24 sellers
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$2,953	28-2-07	$1.00 for year ending 28-2-07	6¾	$15
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $120,000	$4,378	31-12-0	Final of $15 making in all $19 for 1907	8½	$225
Hongkong Rope Manufacturing Co., Ld.	1883	$500,000	50,000	$10	$10	$65,000	$4,212	31-12-06	Interim of 80 cents per share for % 1907	8	$26 sales
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 i Tls. 27,603	Tls. 17,127	31-10-06	Interim of Tls. 10 for first quarter	7½	Tls. 440 ex div. b.
Peak Tramways Co., Ld. Do. (New)	1907	$750.000	25,000 50,000	$10 $10	$10 $1	none	$2,655	30-4-07	$1 per share for period from 19th Oct. to 30th April, 1907	8	$13 $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	none	31-12-07	None	....	$7½ buyers
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 7,990	31-12 06	Interim of Tls. 3½ for % 1907	....	Tls. 107 buyers
Shanghai Horse Bazaar Co., Ld.	1904	Tls. 270,000	5,400	Tls. 50	Tls. 50	Tls. 67,323	Tls. 9,751	31-12-05	Tls. 4 for 1905	....	Tls. 40 sellers
Shanghai Pulp & Paper Co., Ld.	....	Tls. 450,000	4,500	Tls. 100	Tls. 100	Tls. 45,000 e Tls. 8,000	Tls. 3,354	31-12-06	Final of Tls. 5 making Tls. 10 for 1906	....	Tls. 45 ,buyers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 w Tls. 75,000	Tls. 8,493	31-10-07	Final of Tls. 9 making in all Tls. 14 for 1907	11½	Tls. 122 sales
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 85,592	31-12-05	Interim of 15|- for % 1907 (old) Interim of 11|3- for % 1907 (n.)	....	Tls. 375 sales
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $41 934	28-2-06	None	....	$23 buyers
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	78	31-5-07	40 cents for year ending 30-5-07	6¾	$6 sellers
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 97 sellers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$111	31-12-07	50 cents for 1907	5	$10 buyers
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$13,000	31-5-07	80 cts. on 9,900 ord. shares & $19.80 on 100 founders' shares for year ending 31-5-07	8	$10
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 $25,000	$5,482	31-12-06	Interim of 30 cts. for % 1907	6¾	$10 buyers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent. for year endg 31. 7 07	....	$130 buyers
William Powell, Ld.	1901	$150,000	15,000	$10	$10	none	$41	30-6-07	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$5½

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. Plus interest
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par. Plus interest
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 97 Plus interest
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	par. Plus interest
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par. Plus interest
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	||	Half yearly, March 31st and Sept. 30th	Tls. 97½. Plus interest
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 5,725 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 198 shares unissued.
15 22,250 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government-Kuping Tls. 5,000,000.
* Based on last year's dividend.
** Based on present dividend.
|| Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co. Ltd	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Gold cents Sixty for year ended 30th June 1907	Dec. 1907
Wei-hai-wei Gold Mining Co. Limited	$1 nominal		$700,000	35,000	$20	$20	—	None	—
Kiang pei-ting Coal & Iron Mine Co. Ltd	Tls. 50		Tls. 500,000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co. Limited	Tls. 208 sales		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 18 for 1905	Mar. 31, 1906
Land									
Wei-hai-wei Land & Building Co. Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co. Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1907
Hotel des Colonies Company, Limited	Tls. 9¾ sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	Final of 6% making 10% for 1905	May 31, 1906
Kalee, Limited	$100 nominal		$100,000	4,000	$100	$100	—	$8 for 1906	May 22, 1907
Tsingtau Hotel Company, Ltd.	nominal		$250,000	2,500	$100	$100	—	5% & 2% bonus for 1905	May 24, 1906
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4.000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros, Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited	Tls 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited.	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	Tls. 2 for year ending 31.12.1906	Mar. 20, 1907
Shanghai Oil Co., Limited	Tls. 25		Tls. 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited.	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited.	$47½ sellers		$100,000	2,000	$50	$50	—	$5 year ending 28 2 07	Apr. 17, 1907
J. Llewellyn & Co., Limited	$50 buyers		$72,000	1,200	$60	$60	—	$6 for 1906	May 16, 1907
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Interim of 5% for 1907	Nov. 18, 1907
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9 000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited.	$40 buyers		$250,000	5,000	$50	$50	—	—	—
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$20,000	Interim of 80 cents for year 1 3.07 to 28 2.08	Dec. 11, 1907
Dominion Rubber Co., Limited.	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co, Ltd.	Tls. 50 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	—	—
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30 000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	4% for half year ended 31 Oct. 1907.	Dec. 17, 1907
Shanghai Mutual Telephone Co., Limited	Tls. 53½ buyers	53½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 4 for 1906	—
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 20.2.07	Mar. 28, 1907
China Printing Co., Limited	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	—	—
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 07	Nov. 21, 1907
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	—	—
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5 000	$25	$25	—	Interim of 4% for 1907	Jan. 15, 1908
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 87	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 92	,, 125,000	" 47,300	" 100	5½ ,,	Do
do	1894	,, 98⅓	,, 105,000	" 60 000	" 100	6 ,,	Do
do	1895	,, 87	,, 115,000	" 110,9 0	" 100	5 ,,	Do
do	1896	,, 87	,, 140,000	" 135,700	" 100	5 ,,	Do
do	1897	,, 87	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 98½	,, 300,000	" 60,000	" 100	6 ,,	Do
do	1900	,, 92	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 98½	,, 250,000	" 200,000	" 100	6 ,,	Do
do	1902	,, 98½	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 98½	,, 490,500	" 490,500	" 100	6 ,,	Do
do	1904	,, 98½	,, 214,500	" 214,500	" 100	6 ,,	Do
do	1905	,, 98½	,, 320,000	" 320,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept.
Shanghai Land Investment Co. Debentures	1890	,, 97½	,, 250,000	" 250,000	" 100	6 ,,	May. & Nov.
do	1892	,, 92	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do	1894	,, 97½	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 87	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 97½	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 97½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 92	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 97½	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 97½	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co. Debentures	1894	,, 97½	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 87	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 97½	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 97½	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 97½	,, 100,000	" 100,000	" 100	6 ,,	Do
do	1903	,, 97½	,, 100,000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co. Debentures	1902	,, 100	,, 200,000	" 200 000	" 100	7 ,,	April & Oct.
Shanghai Gas Co. Debentures	1897	,, 87	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 97½	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 97½	,, 2,000 000	" 200.0 0	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co. Debentures	1902	,, 97	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co. Debentures		,, 100	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council. Hankow	1901	Sh. ,, 102½	H'kow Tls 100,000	H'kow Tls. 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170 000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do	1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co. Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.

SINGAPORE SHARE QUOTATIONS

(Courtesy Messrs. Fraser & Co., Brokers, Singapore, March, 1908)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	....	25% for year ending 31-3-07	Belat Tin Mining Co., Ltd	....	8.25	8.25
1907	$300,000	225,000	22,500y	10	10	....		Bruang Ltd	7.00	7.25	7.00
1901	$600,000	600,000	60,000	10	10	....	20% for year ending 30-4-07	Bruseh Hydraulic Tin Mining Co., Ltd	....	14.50	14.50
1903	£400,000	350,000	350,000a	1	1	....		Duff Development Co., Ltd	2.00	2.10	2.00
1907	$400,000	375,000	37,500b	10	10	....		Kanaboi, Ltd	....	4.50	4.50
1901	£60,000	60,000	60,000	1	1	....	1/6 interim during 1907	Kinta Tin Mines, Ltd	....	10.25	10.25
1906	£100,000	100,000	100,000	1	1	....		Kledang Tin Mining Co., Ltd	6.25	6.50	6.25
1905	$150,000	99,000	9,900c	10	10	6,000	25% interim for 1907	Kuantan Tin Mining Co., Ltd	....	12.50	12.50
1906	£120,000	120,000	120,000	1	1	....		Lahat Mines Ltd	7.00	7.25	7.00
1906	£30 000	30,000	30,000	1	1	....		Malaya and Siam Corporation, Ltd	....	15/-	15/-
1906	$450,000	337,500	45,000	10	7.50	....		Malacca Tin Dredging Co., Ltd	....	6 50	6.50
1906	£250,000	179,500	600,000h	5/-	5/-	....		Pahang Consolidated Co., Ltd	32/-	32/6	32/-
			100,000	1	1	....		" " " 7% *Pref*	....	....	nominal.
1907	£100,000	80,000	80,000k*	1	1	....		Pengkalen, Ltd	6.50	7.00	7.00
1904	£120,000	100,000	100,000d	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd	....	8.25	8.25
1907	$450,000	300,000	30,000i*	10	10	....		Rahman Hydraulic Tin Mines, Ltd	8.75	9.25	9.25
1905	£27,000	21,750	21,750e	1	1	....	1/- interim during 1907	Rambutan, Ltd	8.50	8.75	8.50
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully. pd.*	6.65	6.75	6.65
			150,000	1	18/10	....	1/- " " "	" " " *Contributory*	6.65	6 75	6.65
1905	£40,000	40,000	40,000	1	1	....		Redhills Tin Mining Co., Ltd	4.00	4.25	4.25
1898	Gs2 500,000	2,500,000	25,000	100	100	....	7½% for year ending 31-12-07	Redjang Lebong Mining Co	....	....	915.00
1900	$110,000	110,000	22,000	5	5	....	10% for 1907	Royal Johore Tin Mining Co., Ltd	....	1.25	1.25
1907	$500,000	500,000	50,000	10	7.50	....		Salak South, Ltd	6.00	6.25	6.00
1907	£80,000	80,000	80,000	1	1	....		Sempam Tin Mines, Ltd	5.50	5.75	5.50
1906	$850,000	850,000	85,000	10	10	25,000	27½% during 1907	Serendah Hydraulic Tin Ming. Co., Ltd	10.00	10.00	10.00
1899	$230,000	230,000	23,000	10	10	....	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd	5.50	5.75	5.50
1907	£90,000	70,000	70,000z	1	1	....		Tekka, Limited	10.00	10.10	10.00
1902	£160,000	149,185	149,185f	1	1	....	5/- interim during 1907	Tronoh Mines, Ltd	14.00	14.25	14.00
1907	$60,000	60,000	600	100	100	....		Tunggal Tin, Ltd	....	20.00	20.00
								RUBBER			
1905	£150,000	116,625	46,500g	1	1	....	10% interim for 1907	Anglo-Malay Rub. Co., Ltd. *Fully paid*	....	....	£3 17s. 6d.
			93,500	1	15/-	....		" " " *Contributory*	....	....	£3 10s. 0d.
1905	$200,000	105,000	10,500h*	10	10	....	12½% interim for 1907	Balgownie Rub. Estate Ltd	20.00	20.50	$20.50
1904	£30,000	15,250	7,000i	1	1	....		Batu Caves Rub. Co., Ltd. *Fully paid*	....	....	£5 0s. 0d.
			11,000	1	15/-	....		" " " *Contributory*	....	....	£4. 2s. 6d.
1903	£70,000	61,000	61,000j	1	1	....	10% interim for 1907	Bukit Rajah Rubber Co., Ltd	....	....	£4. 12s. 6d.
1906	$150,000	125,000	12,500k	10	10	....		Castlewood Rubber Co., Ltd	....	10.00	10.00
1904	£12,000	10,500	6,000	1	1	....	15% interim for 1907	Cicely Rubber Estates Co., Ltd	....	5.5.0	£5. 5s. 0d.
			6,000	1	15/-	....	15% interim for 1907	" " " " 5% *Pref*	....	6.0.0	£6 0s. 0d.
1905	£75,000	55,000	55,000l	1	1	....	10% for year ending 31-12-06	Consolidated Malay Rub. Estates, Ltd	....	2.11.6	£2 11s. 6d.
1906	£310,000	243,227	181,454m	1	1	....	5% interim for 1907	Highlands & Lowds. Para Rub. Co., Ltd	2.0.0	2.1.3	£2 1s. 3d.
			123,546	1	10/-	....		" " " " *Contributory*	1.2.6	1.5.0	£1 5s. 0d.
1906	£180,000	180,000	180,000	1	1	....	3% interim for 1907	Kuala Lumpur Rubber Co., Ltd	....	1.5.0	£1 5s. 0d.
1907	£320,000	201,500	184,000d*	1	1	....		Lanadron Rubber Estates, Ltd	....	....	nominal
			70,000	1	5/-	....		" " " *Contributory*	12/-	12/6	12/-
1906	Gs 175,000	146,250	80	250	250	....		Langen Rub. and Cocoanut Co., Ltd	....	....	300.
			460	250	187.50	....		" " " " " "	....	195.00	195.00
			160	250	250	....		" " " " " *Deferred*	....	....	250.
1906	$250,000	225 000	22,500n	10	10	....		Ledbury Rubber Co., Ltd	....	10.25	10.25
1895	£100,000	76,100	900,000f*	2/-	2/-	....	10% interim for 1907	Linggi Plantations Ltd., *Ordinary*	10/9	11/3	11/3
			10,000	1	1	....		" " " 7% *Pref*	....	...	£1 0s. 0d.
1906	£300,000	260,625	115,000	1	1	....	7½% for year ending 31-12-07	Malacca Rubber Plantations 7½% *Pref*	18/6	1.0.0	18/6
			140,000	1	1	....		" " *Ordinary*	11/-	13/-	11/-
			45,000	1	2/6	....		" " *Contributory*	....	....	nominal.
1903	£30,000	20,000	20,000o	1	1	....	10% interim for 1907	Pataling Rubber Estates Synd. Ltd	....	....	£7. 10s. 0d.
1906	$250,000	225,000	22,500b*	10	10	....		Ragalla Rubber Co., Ltd	....	10.00	10.00
1904	£20,000	8,794	2,588a*	1	1	....		Sagga Rubber Company Limited	....	....	£2. 10s. 0d.
			12,412	1	10/-	....		" " " "	....	....	....
1904	$100,000	100,000	1,000	100	100	....	20% for year ending 31-1-07	Sandycroft Rubber Co., Ltd	....	305.00	$305.00
1898	£30,000	28,150	263,000	2/-	2/-	....	25% interim for 1907	Selangor Rubber Co., Ltd	....	....	14/-
			37,000	2/-	1/-	....		" " *Contributory*	....	....	nominal.
1903	$250,000	250,000	2,500	100	100	....		Singapore & Johore Rub. Co., Ltd	....	125.00	125.00
1905	$100,000	100,000	10,000	10	10	....	7½% for year ending 30/6/07	Sione Rubber Co., Ltd	....	13.00	13.00
1906	£100,000	93,357	73,500	1	1	....		Sungei Kapar Rubber Co., Ltd	....	....	nominal.
			26,500	1	15/	....		" " " " *Contributory*	....	....	£2 1s. 0d.
1904	£50,000	28,795	6,920p	1	1	....		Sungei Way (Selangor) Rub. Co., Ltd	....	....	£2. 0s. 0d.
			35,000	1	12/-6	....		" " " *Contributory*	....	1.10.0	£1. 10s. 0d.
1904	£60,000	50,000	500,000q	2/-	2/-	....	55% for 1907	Vallambrosa Rubber Co., Ltd	....	12/-	12/-
								GENERAL			
1894	£5,377.10.0	4,805	7,688c*	12/6	12/6	1,300	10% for year ending 31-12-06	Bells Asbestos Eastern Agency, Ltd	5.00	6.50	5.00
1898	$225,000	225,000	4,500	50	50	112,500	15% & 2½% bon. for yr. end. 31-12-06.	Fraser & Neave, Ltd	142.50	145.00	142.50
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000t 13,500,000u 250,000v	£2-0-0 on old and £1 10s 0d on new shares for ½ year ending 31-12-07	Hongkong & Shanghai Bank'g Corpt'n	....	....	£75 10s. 0d.
1905	$2,400,000	2,400,000	18,000	100	....	75,000	7½% for year ending 31-10-07	Howarth Erskine, Ltd	....	145.00	145.00
			6,000	100	....	....	7% for year ending 31-10-07	" " 7% *Pref*	....	....	120.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-06	Katz Brothers, Ltd. *Deferred*	....	....	130.00
			4,000	100	100	....	8% " " " " "	" " 8% *Cum. Pref*	....	....	nominal.
1901	$34,000	34,000	3,400	10	10	....	20% for year ending 31-10-07	Maynard & Co., Ltd	17.50	19.00	19.00
1899	$875,000	875,000	6.000	100	100	150,000	5% for year ending 31/12/06	Riley, Hargreaves & Co., Ltd	....	117.50	117.50
			2,750	100	100	....	7% for year ending 31/12/06	" " " " 7% *Pref*	115.00	....	115.00
1903	$600,000	240,000	24,000r	10	10	....		Singapore Cold Storage Co., Ltd	6.25	6.50	6.50
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-07	Singapore Dispensary Ltd	....	42.50	42.50
1903	£400,000	400,000	400,000	1	1	....		Singapore Electric Tramways, Co., Ltd.	5/-	5/6	5/6
1904	$160,000	112,000	1,120g*	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate Ltd	....	65.00	65.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd	....	....	130.00
1890	$500,000	500,000	5,000j*	100	100	400,000 458,925w	10% for year ending 1907	Straits Steam Ship Co., Ltd	195.00	197.50	195.00
1904	$40,000	$35,350	2,535s	10	10	....		Straits Tobacco Factory, Ltd	....	2.75	2.75
			1,000	10	10	....		" " " "	....	....	nominal.
1887	$3,000,000	3,000,000	300,000	10	10	1,150,000 1,187,084y	10% & 5% bon. ½ yr. end. 30-9-07	Straits Trading Co., Ltd	50.00	50.50	50.00
								DEBENTURES			
								Howarth Erskine, Ltd. 6% .... $ 600,000	....	....	3% prem.
								Riley, Hargreaves & Co., Ld. 6% ..225,000	....	....	3% prem.
								Singapore Electric Tramways, Co., Ltd. 5% 350,000	....	....	nominal
								Singapore Municipal 6% 400,000	....	....	20% prem.
								" " 5% 1,878,000	....	....	3% prem.
								" " 4½% 1,600,000	....	5%	5% prem.
								" " 4% 602,900	....	....	2% dis. nom.
								Straits Engineering Synd. Ltd. 6% 45,000	....	....	par.
								Tanjong Pagar Dock Board 6% ...250,000	....	....	3% prem.
								" " " 5% ..1,050,000	....	....	1% prem.

a 50,000 unissued
b 2,500 "
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
g 10,000 "
h 100,000 " *Ord.*; 45,500 " *Pref.*
i 12,000 "
j 9,000 "
k 2,500 "
l 20,000 "

m 5,000 unissued.
n 2,500 "
o 10,000 "
p 8,080 "
q 100,000 "
r 36,000 "
s 465 "
t Special Gold Reserve Fund
u Silver Reserve Fund.
v Insurance Fund.
w Sundry Reserves.
x Sundry Reserves.
y 7,500 unissued.

z 20,000 unissued.
a* 5,000 "
b* 2,500 "
c* 916 "
d* 66,000 "
e* 239,000 "
f* 480 "
g* 9.500 "
h* 15,000 "
i* 44 "
j* 20,000 "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, MARCH, 1908

STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVE FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2800	-Y- 10	-Y- 10			31-12-06	8%	for 1 year	10 Sellers.
Club Hotel, Ltd.	185,000	1850	100	100	3,000	-Y- 943.52	31-3-07	10%	for ½ year	75 Sellers.
Grand Hotel, Ltd.	500,000	5000	100	100	10,090	-Y- 8,762.67	31-12-07	5%	for ½ year	100 Sellers.
Helm Bros., Ltd.	186,000	3720	50	50	25,000	-Y- 1,682.93	31-12-07	20%	for 1 year	80 Sellers.
Langfeldt & Co., Ltd.	150,000	1500	100	100		Dr. 14,115.95	31-12-07		for ½ year	45 Sales.
C. Nickel & Co., Ltd. †	500,000	20000	25	25		1,729.20	31-10-07	20%	for 1 year	42 Sales.
Yokohama Engine and Iron Works *	500,000	10000	50	50	50,000	-Y- 12,477.04	31-5-07	10%	for ½ year	80 Sellers.
Oriental Hotel, Ltd., Ordinary	250,000	3000	50	50	62,285.42		31-8-06	15%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference		2000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10000	100	100	3,259.65	1,774.45	30-9-07	7%	9 mos.	105 Sales.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C. Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 98.10
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 92.00
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 92.00
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 82.50
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 82.50
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 80.00
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 82.80
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 96.50
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 94.00
Osaka Harbour Bonds	100	100	6%	June and Dec.	,, 91.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 93.50
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 96.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 700.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	8%	June and Dec.	,, 58.00
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 39.00
Keihin Electric Tramway Company, Limited	50	50	13%	June and Dec.	,, 66.00
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 24.50
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 86.30
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	22%	July and Jan.	,, 77.05
Fuji Gassed-Yarn Company, Limited	50	50	25%	July and Jan.	,, 70.60
Tokyo Cotton Spinning Company, Limited	50	50	18%	July and Jan.	,, 38.70
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 53.00
Nisshin Boseki Kabushiki Kaisha	50	12½	....	——	,, 7.30
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	17½%	May and Nov.	,, 71.00
Ensuiko Sugar Refinery Company, Limited	50	12½	18%	June and Dec.	,, 14.90
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 86.65
Kirin Brewery Company, Limited	50	50	8%	July and Jan.	,, 63.00
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 50.00
Uraga Dock Company, Limited	50	50		July and Jan.	,, 7.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 70.00
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 79.80
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 87.05
Miscellaneous					
Tokyo Electric Light Company, Limited	50	50	10%	June and Dec.	,, 65.00
Tokyo Gas Company, Limited	50	50	15%	July and Jan.	,, 80.10
Yokohama Union Electric Light Company, Limited	50	50	15%	July and Jan.	,, 71.50
Fuji Paper Mills	50	50	10%	June and Dec.	,, 44.00
Otaru Timber Company, Limited	50	50	15%	March and Sept.	,, 24.50
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 117.95
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 93 00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 46.00
Tokyo Stock Exchange Company	50	50	11%	June and Dec.	, 96.00
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 102.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 84.00

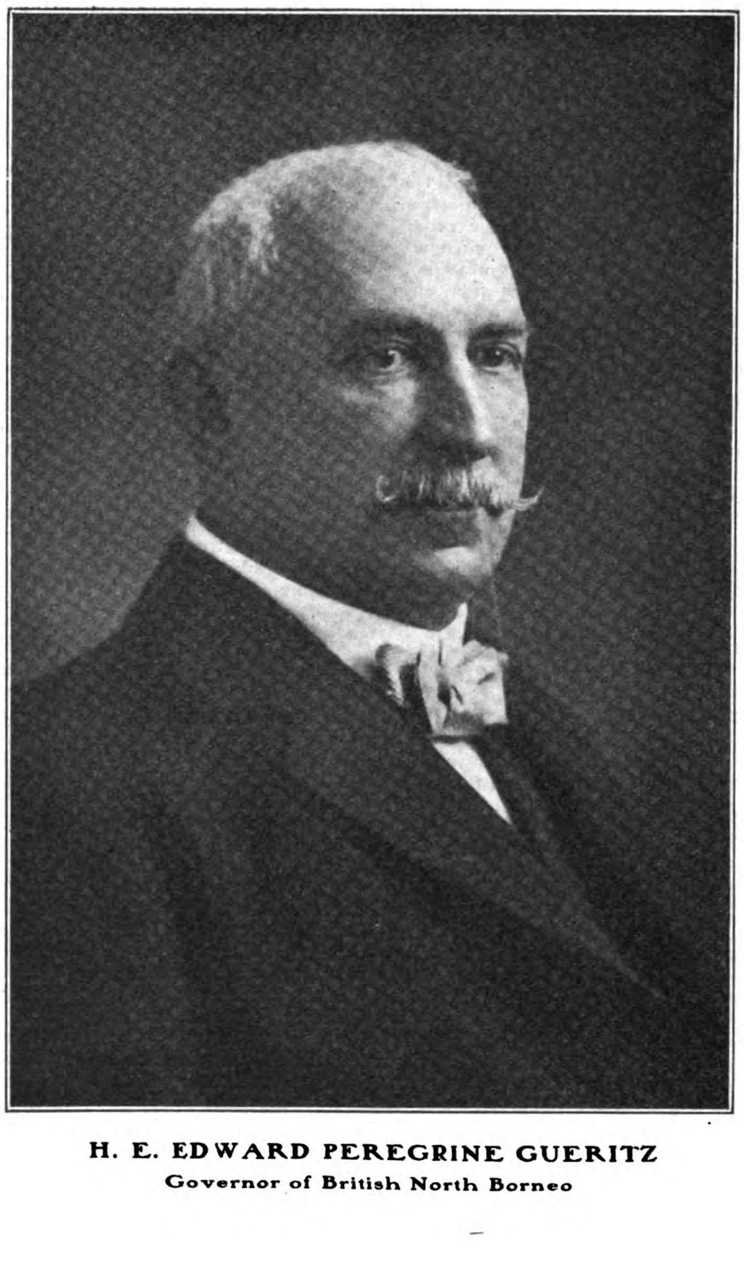
BANGKOK SHARE QUOTATIONS

NAME.	BUYERS	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 510	Tcs. 510	1901	£ 00,000	30,000	£ 10	£ 300,000	Tcs. 448,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, 200	,, —	,, 210	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Aug. 31, 1906
Siam Tramway Co., Ltd.	,, —	,, 170	,, 170	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1907 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, —	,, 129	,, 129	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	—	—	—
Bangkok Manufact. Co., Ltd.	,, —	,, 120	,, 120	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	June 30, 1907 Dec. 31, ,,
Howarth Erskine, Ltd.	,, —	,, —	,, 235	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	7½%	Oct. 31, 1907
Bangkok Dock Co., Ltd.	,, —	,, —	,, 305	1865	Tcs. 666,666	4,000	Tcs. 166⅔	Tcs. 666,666	Tcs. 270,000 60,000	12½% & 2½ Bonus	Dec. 31, 1906
Siam Steam Packet Co.	,, 100	,, 105	,, 105	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 24,000	8%	Dec. 31, 1906
Siam Commercial Bank	,, 1,400	,, 1,450	,, 1,450	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	2½%	Sept. 30, 1906
Menam Motor Boat Co.	,, —	,, 165	,, 165	1905	,, 200,000	2,000	,, 1,000	,, 125,000	—	5%	July 31, 1907
Jenderata Rubber Co.	,, —	,, 72	,, 72	1906	£ 40,000	4,000	£ 10	£3, per Share	—	None	—
Langsuan Tin Mine Co.	,, —	3/	4/	1905	£ 170,000	170,000	£ 1	£ 60,000	—	—	—

THE FAR EASTERN REVIEW

COMMERCE · ENGINEERING · FINANCE

VOL. IV. MANILA, P. I., SHANGHAI, AND YOKOHAMA, MAY, 1908 No. 12.



H. E. EDWARD PEREGRINE GUERITZ

Governor of British North Borneo

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

COMMERCE :: ENGINEERING :: FINANCE

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Mr. Anthony R. Tuohy, the business manager of the FAR EASTERN REVIEW, has resigned his position, after being identified with the publication for over two years. During that time he was unsparing in his efforts to serve his clients and it is with regret that the management received the intimation of his desire to retire from the direction of the business department.

Mr. Tuohy leaves soon on a visit to the United States where he goes in search of health.

Mr. George Bronson Rea, the publisher, is on his way from New York to give his personal attention to the management in the Far East.

THE CHINA ASSOCIATION

The speech of Mr. F. Anderson, who presided at the annual general meeting of the Shanghai Branch of the China Association held at the Shanghai Club, Shanghai, April 27, is of peculiar interest at this time as voicing the views of the leading British association in the Far East on important questions affecting foreign trade. His reference to the protection of foreign trademarks, the open door in Manchuria and the Fukumen Railway question indicate the trend of opinion among British merchants and, while conservative and consistent, is to the point. In regard to trademarks in China, according to the N. C. Daily News, he said in part:

"When the Committee's opinion about the matter was asked, it suggested that there appeared to be no special urgency for this question being pressed at the present moment, as many other clauses of the Mackay Treaty were of more vital importance to the welfare of China and China's trade, especially those clauses relating to currency and the compilation of mining regulations. The Committee pointed out that a few simple stipulations should be made in any convention concluded with the Chinese government, such as that a trade mark was a valuable property which belonged to those who established it; that the owner of that mark might reasonably look for the protection of his rights, and that if there were more than one claimant for any registered trademark, priority of usage should be recognized and respected. He understood, however, that some difficulties had arisen owing to the laws of Japan. The committee for example believed that if a Japanese succeeded in registering a foreign trademark—probably one that had never been used in Japan, but only in China—he was entitled to use it, and would probably do so, if it were a valuable one, on inferior goods. It was also possible for a Japanese subject to register a foreign trade mark in Japan if he made some slight alteration, perhaps by putting in the wording "Made in Japan." In either case, if the trade mark could not be upset in a Japanese court—and there was some difficulty in upsetting a trademark in a Japanese court—it became the unassailable property of the man who had pirated it. In these circumstances it must be against British interests in China to make a convention in which the conditions mentioned above were not recognized. Japanese law did not appear clearly to recognize the difference between *meum* and *tuum* when foreign rights were assailed by their countrymen, and if this were so, their laws seemed unfair to other countries. The committee believed that when the true state of Japanese law, and its effects upon residents in China were pointed out to the Japanese government, the Japanese would alter their laws of their own accord. Unless this were done, the Association did not see its way to concur with the conclusion of any convention with China under which British property would be liable to confiscation."

In reference to the Open Door in Manchuria, he said:

"The Committee had made representations to London on the subject of the prolonged delay in re-establishing what was known as the Open Door in Manchuria. In doing so it had not been unmindful of the fact that Manchuria had only lately been the field of battle, and that difficulties must be expected to arise in carrying out the terms of such an agreement as the Treaty of Portsmouth. It seemed to the Committee that the trend of events appeared to indicate that the policy of the Japanese administration and officials had been directed towards the establishment of preferential claims for Japanese trade, and the discouragement of other foreign competition, leading to a state of affairs that would become a revival of the "sphere of influence" regime in the Northern provinces. It was possible that this was partly due to an excess of zeal on the part of Japanese officials, but it was felt that there were good grounds for calling attention to the delay in fulfilling treaty obligations—not in any hostile spirit, but in the belief that if representations in this sense were made to the proper authorities of a great nation like Japan there could be no question but that those obligations would be carried out. He remembered some years ago hearing this question discussed by a gentleman who occupied an important position in the service of Japan. He said that those people who distrusted Japan's adhesion to the open door policy did not give his countrymen credit for common sense or for being clear headed; they knew that claims to preferential rights in trade would alienate friendly nations and would give rise to complications but that, as Japan could compete for the trade of China on favorable terms without any preference, owing to her proximity and her plentiful supply of cheap labor, they would rely upon their natural and not upon artificial advantages. These views appeared to be quite sound and if he had wanted additional arguments, he might have pointed out that Japan was not a producer of much of the raw materials necessary for her industries but had to draw them from the very countries whose trade would be injured by a negation of the open door, in addition to the loss of credit which any great nation would suffer from the non-fulfilment of its pledged word. As there were doubtless many influential leaders in Japan who still adhered to the same view a change for the better in the North might be expected as time went on. It was difficult to account for the extraordinary depression that prevailed in Manchuria, and for such circumstances as that there should be a plethora of sycee in Shanghai and an extraordinary scarcity of it in Newchwang. No one could say definitely that the withdrawal of capital from the North was due to political conditions, but a more settled state of affairs would be beneficial to commercial interests generally."

Referring to the support given by the Association to the Newchwang Chamber of Commerce in the latter's endorsement of the proposal to construct the Fakumen Railway so strongly opposed by the Japanese authorities, Mr. Anderson said:

"The Committee had been asked to support the action of the Newchwang Chamber of Commerce regarding the Fakumen Railway, and had complied with that request because it believed such a railway would be beneficial in developing what he might describe as the hinterland of Newchwang. With facilities for communication it was believed that a large area of that country might be developed into a wheat growing country. Wheat was a produce that would not bear long and expensive transport, and in view of the present high prices of food stuffs a new source of supply would be an undoubted advantage to the whole of the East. While the Committee did not profess to have entered fully into all the details of the discussion that had arisen in connexion with this line, if, as it seemed, the only objection to it was that it would compete with the main Japanese line, that was a difficulty that might be overcome by building the railway a few miles further away. The British objection to the building of a line parallel to the Kowloon and Canton line was hardly on all fours with the Fakumen railway; the proposed line in the South was only four miles distant from the one the British and Chinese Corporation were building, whereas the Fakumen railway was some thirty-five miles distant from the main Japanese line at its nearest point. It was not quite apparent how the

Japanese feared competition from the proposed line, more especially as China, after she had built railways, imposed heavy likin taxation on the cargo carried by them, while it was understood that no likin was charged on the Japanese line. If the difficulties in the way of the construction of the Fakumen line could be overcome either by mutual agreement or arbitration it was the Committee's belief that both Japanese and foreign trade would benefit considerably. If the Chinese Government were urged to improve the navigation of the Liao River this would afford an additional means of communication in Manchuria."

Referring to the unfavorable local conditions in the Chinese provinces the speaker said:

"It could not be doubted that not only on fiscal questions, but also in mining regulations in industrial progress, in the currency question, in railway development and even in defensive services, many of the leading men of the provinces acted as if they believed imperial and provincial interests were antagonistic, with the result that progress was handicapped everywhere. There was something to be said in favor of the present system from the local point of view; the population had a great deal of freedom and of local independence, but it hardly admitted a doubt that a rapidly growing population must have increased opportunities for employment and of earning a livelihood; otherwise there would be trouble. The movement to bring about a change could only be successfully controlled by a strong central authority. The fact was that China was an awful example of the dissipation of strength resulting from a gigantic system of home rule. In China there were about a dozen different states in which the supposed interests of the provinces were paramount, and the only hope for national progress lay in the Imperial government controlling national affairs."

Referring to the obstruction by local officials to the carrying out of national promises affecting private British interests the chairman said:

"During the past year the committee had not been called upon to make representations on behalf of private interests regarding the bad faith of the Chinese government in placing obstacles in the way of people who have done their best to work on amicable terms with the Chinese for the development of the country in various directions, but it was known that such cases existed, and they were anything but creditable to the reputation of China for honesty and fair dealing. Obstruction by local officials after promises had been made by the imperial government was persistent and the end of it was that all enterprise was tired out by constant obstacles and constant delay. If the local officials could only realize the harm done the country by these tactics the speaker believed that their policy would be entirely changed.

In reporting the details of the meeting, the *North China Daily News* states the presiding officer's address was greeted with applause.

Certain it is that Mr. Anderson's remarks could be read with benefit, not only by the British foreign office, but by the leaders of thought in Japan and in the undeveloped provinces of the empire of China.

PREHISTORIC WATER SUPPLY

Under the title "Neolithic Dew-Ponds and Cattleways" Arthur John Hubbert, M. D., and George Hubbard, F. S. A., have furnished a volume on the prehistoric methods used in securing a water supply in sections where it was impossible to secure it from natural sources or wells or where it became necessary for defense to live on elevated territory. As has been found, many of these earthworks were built on chalk formations, the only available water supply being the dew-pond which is described by the authors as follows:

"We are not aware that the thermodynamics of a dew-pond have ever been elucidated, and it is evident that this cannot be done until the construction of such a pond is understood. There is still in this country at least one wandering gang of men (analogous to the medieval bands of bell-founders, masons, etc.) who will construct for the modern farmer a pond which, in any suitable situation in a sufficiently dry soil, will always contain water. This water is not derived from springs or rainfall, and is speedily lost if even the smallest rivulet is allowed to flow into the pond. The gang of dew-pond makers commence operations by hollowing out the earth for a space far in excess of the apparent requirements of the proposed pond. They then thickly cover the whole of the hollow with a coating of dry straw. The straw in its turn is covered by a layer of well-chosen, finely puddled clay, and the upper surface of the clay is then closely strewn with stones. Care has to be taken that the margin of the straw is effectively protected by clay. The pond will gradually become filled with water, the more rapidly the larger it is, even though no rain may fall. If such a structure is situated on the summit of a down, during the warmth of a summer day the earth will have stored a considerable amount of heat, while the pond, protected from this heat by the non-conductivity of the straw, is at the same time chilled by the process of evaporation from the puddled clay. The consequence is that during the night the moisture of the comparatively warm air is condensed on the surface of the cold clay. As the condensation during the night is in excess of the evaporation during the day, the pond becomes, night by night, gradually filled. Theoretically, we may observe that during the day the air being comparatively charged with moisture, evaporation is necessarily less than the precipitation during the night. In practice it is found that the pond will constantly yield a supply of the purest water.

"The dew-pond will cease to attract the dew if the layer of straw should get wet, as it then becomes of the same temperature as the surrounding earth, and ceases to act as a non-conductor of heat. This, practically, always occurs if a spring is allowed to flow into the pond, or if the layer of clay technically called the 'crust' is pierced."

The knowledge ought to prove valuable to military officers having charge of active campaigns where often the lack of water not only interferes with important movements but increases the hardships and suffering in many necessary operations.

THE HONGKONG TYPHOON REFUGE

It is evident the *China Mail* is not doubtful of Hongkong's future, and believes that no expense should be spared to protect the shipping of the port since upon its predominance as a maritime center, that future depends, we reproduce the comments of that estimable journal on the proposed expenditure of one and one-half million dollars in building a breakwater at Mong-kok-tsui, recently approved by the Hongkong government and believed to be too expensive by the committee of the chamber of commerce. The *Mail* says:

"We propose now to consider the point raised by the Committee of the Chamber of Commerce as to whether so large an expenditure is necessary. It may, perhaps, be as well for us to give a general outline of the question for the benefit of those who are not conversant with its details. The Causeway Bay Breakwater, built in the early eighties, is the only typhoon shelter available for the vast amount of small craft plying in the harbour. It has an area of 62 acres. Situated as it is at the eastern end of the harbour it is directly to windward and therefore difficult of access in the case of three typhoons out of four, owing to the well-known fact that most of the typhoons which affect the Colony pass to the south of us causing an easterly gale at the beginning of the blow. Constructed over 20 years ago it is only to be expected that it should now be inadequate to meet the requirements of so rapidly growing a port as Hongkong. Its inadequacy affects us prejudicially in more ways than one. Not only are boats crowded out and thus left to the mercy of the winds and waves, but owing to the fear of being thus crowded out, they leave their work long before there is any necessity for them to do so and thus cause delay to the shipping in the harbour and loss to its owners. From time to time proposals for additional typhoon shelters have been put forward. In 1900 the Chamber of Commerce considered the question, and favoured the Kennedytown site, but it was not till the destructive typhoon of September 18, 1906, had galvanized the authorities into action that any definite schemes were got out or reliable estimates made. After considering the Kennedytown scheme, which, owing to the great depth of water, would be very costly, and a proposal to build a breakwater at the back of Stonecutters Island, on closing the bay known as Cheung Sha Wan, which was negatived owing to the great suitability of the bay for reclamation purposes, the Government eventually decided on what is known as the Mong-kok-tsui scheme which consists of building a breakwater from the neighbourhood of the oil tanks at Tai-kok-tsui to the southern end of Yau-ma-ti, to enclose an area of 166 acres at a cost of one and a half million dollars. The Government proposed to raise the necessary money, partly by utilizing the Colony's reserves and partly by increasing the light dues, and this proposal was submitted for the opinion of the Committee of the Chamber of Commerce. In reply, the Committee stated that they thought the proposed expenditure excessive and that sufficient protection against typhoons could be built at much less cost. We are not in a position to criticize so highly technical a question as the design of a breakwater but we do hope that no mistaken ideas of economy will be allowed to step in the way of the provision of a thoroughly adequate refuge, adequate—not for our present needs only—but with a view to the expansion of one of the first ports in the world. Surely our Public Works already show too many instances of an inability to realize the needs of the future to admit of any half measures being taken in this instance. We have the Tytam Dam which was stopped short by 10 feet and then had to be raised that amount within 6 years, and our streets laid out too narrow to be widened later on, where possible, at considerable cost. Of course we are quite aware that the present is not a time to launch out on any but absolutely necessary expenditure; as we stated in our previous article if the scheme is susceptible of modification we trust the Government will make such modification, but our point is that it would not be in the interests of the Colony that a work which will take some years to complete and which will serve the Colony for many more years should be designed on lines commensurate with the present low financial condition of the Colony. We are amply justified in assuming that that condition is only a temporary one. A case in point is that of the Praya Reclamation, one of our most important public works. It will be within the recollection of many residents that in 1893, in the thick of our last great commercial depression, an influentially signed petition was presented to the Government asking for a suspension of the work on the ground that the Colony was not then in a position to carry it on. The Government, fortunately on this occasion, disagreed with the petitioners, and we all know that the Praya Reclamation has paid for itself over and over again. We are confident that the Colony may expect a similar return from the provision of an adequate Typhoon Shelter."

LESSONS FOR THE ENGINEERING PROFESSION IN THE QUEBEC BRIDGE COMMISSION'S REPORT

The *Engineering News* gives a comprehensive review of the findings of the commission selected to investigate the recent Quebec Bridge Disaster and emphasizes the points brought out demonstrating just where the responsibility for the disaster rested, and pointing a lesson to the members of the profession from the sad experience of those upon whom the blame must rest. The *News* says:

"Seven months ago, when the half-completed Quebec Bridge superstructure crashed to destruction, we ranked it as the greatest of engineering disasters. The report upon this wreck, just made by the Canadian Commission of Engineers appointed to investigate it, is we believe the most notable investigation of an engineering disaster that the present generation, at least, has seen.

"A very great responsibility was laid upon this Commission. The country, as well as the engineering profession the world over, desired to know not only the immediate cause of this terrible catastrophe, but the secondary causes which had contributed to bring it about. It was important to find the particular member whose yielding under stress brought down the whole structure in gigantic collapse; but it was far more important that engineers should know what were the defects of organization, or method, or men, or material that lay back of this failing member.

"The Quebec Bridge disaster is a great object lesson to the engineering profession, and it is not a single lesson, but a score of lessons. Notwithstanding the large space which we have given to this disaster during the past seven months, the further space given to the Commission's report in our present issue is demanded by the important lessons which it contains—lessons not alone for the bridge engineer but for the whole profession.

"The task laid before the Investigating Commission was one of extreme difficulty, not so much in tracing the sequence of events which led to the final great collapse as in the judicial weighing and collating of all the facts and distributing in equitable measure the burden of responsibility. In fact one lesson which deserves emphasis here is the importance of judicial fairness in work of this sort. It was not more important that the members of the Commission should have the technical qualifications to understand intricate questions of bridge design and quality of materials than it was that they should be able to fairly weigh men and their acts. A commission less expert might easily have been led astray on some of the technical questions involved. There was ample opportunity for this since the public prints, particularly in Canada, have teemed with discussions of the accident and its causes, which have borne a fair appearance of truthfulness and yet have been in the highest degree misleading—and some of these discussions, we regret to say, have come from engineers.

"So, too, a commission less judicial in its make-up might have treated the disaster in a partisan way, and the result would not only have been injustice to some of the parties involved but cloaking of some of the important lessons to be taught. Here again the profession at large has not been guiltless. We have heard engineers use extravagant terms as to the blame which should be laid on this or that or the other party concerned, speaking without knowledge of the attendant circumstances, and assailing motives as well as deeds. Are we putting it too strongly when we say that no engineer with a spark of professional pride has a right to make public statements of this sort based on partial knowledge? The blame should be meted out where it belongs, certainly; and this the Commission has done; but let us not make the common mistake of going farther and concentrating burdens on one party or another for the sake of relieving some one else.

"When the news of the great disaster was first telegraphed over the continent and engineers everywhere began to canvass the possible causes for the wreck, there was, we doubt not, a general consensus of opinion that the cause could not be laid to conscious, deliberate neglect on the part of the designers and builders. As we said in our editorial immediately following the disaster:

"The importance of the structure must have made every one concerned in its building feel the responsibility of securing, not only perfect design and excellent workmanship, but also material of absolute reliability."

The Commission's report establishes the truth of this prediction. All those concerned in the prosecution of the enterprise understood that they were engaged upon a structure of vast importance and gave to it their best endeavors. The work done throughout was of unusually high grade, with the sole exception of a few apparently small defects, whose importance no one realized until the disaster came like lightning from a clear sky.

"The men who were chiefly responsible for the bridge, Cooper, Deans, Szlapka, Scheidl and the staff of the Phoenix Bridge Co., Norris and the whole organization of the Phoenix Iron Co., with the inspectors in shop and field, labored conscientiously and diligently, far beyond mere perfunctory performance, to create a successful work. The details were looked after with marvelous industry and fidelity; and it was well that this was done, for faults in an engineering work are almost invariably faults in details. But in the pressure of the work upon details, defects in the fundamentals of design were overlooked.

"At the very bottom of the design was the assumption of the dead load of the completed bridge; and yet this assumption was not checked by the weights of the members themselves, as taken from the shop drawings until it was too late to change the dimensions.

"It was an error of administration—unrealized at the time, of course, but an error nevertheless—that subjected the designing engineers to such pressure of work that the chief designer, Szlapka, never found time to check his original dead-load assumption, and never required the detailing department to bring together the detail weights as the work went ahead. The resulting error of 30% in the weight of the structure, the Commission says, was enough to condemn the bridge had it not failed from another weakness.

"It was an error of administration that put the entire engineering control of the design upon one overworked and underpaid Consulting Engineer provided with a single assistant. And it was because this man, sound and experienced both in theory and in practice, loaded himself with laborious detail work that he overlooked the fatal error in the assumed dead weight until the bridge was half built. Because of this, too, his judgment went to sleep when it ought to have condemned the fatally weak design for the great compression members.

"It was a grave fault of administration which permitted the erection of this vast structure—a work of far greater complexity and difficulty than the profession has realized until this Commission's report appeared—without the constant supervision of a high-class bridge engineer constantly on the ground. We said in our issue of Sept. 19 last:

"'If a huge piece of steel work like the Quebec Bridge can appear in perfect condition and yet collapse under static loads without warning, it is cause for great uneasiness among engineers.'

"We now know that the great bridge did give ample warning of the distress it was experiencing; and these warnings were seen and their significance was realized by the practical men on the ground. Authority, however, lay not in their hands but with a nominal Chief Engineer, in Quebec, 12 miles away, who was lacking in the technical knowledge and experience necessary to deal with such a problem. Real authority lay at New York, 600 miles away, with an engineer *who had never seen the structure for which he was actually carrying the entire engineering responsibility*, and at Phoenixville, still farther distant, where the engineers were relying on Cooper with implicit faith, and receiving the letters and telegrams from the subordinates at Quebec telling of the strange behavior of compression members without the smallest conception of its fatal significance.

"Had there been no fundamental errors of design to create an emergency, a high-class resident bridge engineer clothed with authority to act in an emergency was still needed at the bridge site to see that the delicate work of erection was properly carried forward; and had such a man been on the spot, the lives of the 74 men killed in the disaster might have been saved.

"We need not take space to enumerate all the lessons contained in the Commission's report. They are evident enough to every engineer who carefully studies it. There is one lesson, however, which deserves emphasis; and one which it behooves us as engineers to study in all humility.

"And the lesson is the contrast between the practical man—the man whose only training was the training of the shop and the field—and the engineer with a thorough technical education.

"It was two foremen in the Phoenix shops who, in handling the huge ribs which were to be assembled to form compression chords and posts, became impressed with the flexibility of these members and their unsuitability to act as long compression struts. These criticisms were communicated by the President of the Phoenix Bridge Co. to Mr. Szlapka and Mr. Cooper and were dismissed by them as unsubstantiated.

"When the inspectors of the bridge found a bottom-chord member bent—not merely kinked but bent alike in every component part and on its entire length—who was it that perceived the seriousness of the situation? Not the scientifically-trained engineering directors of the work. Birks laughed down all fears He set his belief that the chord could not be crippling because, forsooth, it was not yet loaded to anything like what it was designed to carry, against the positive statements of observed facts by Clark, Kinloch, Yenser and McLure. Deans, with even less actual information than Birks, asserted that he knew no change had taken place in the member, and over the telephone reassured the staff at the bridge. Szlapka, the man who had designed the bridge, knew every part and how it should behave, saw nothing in the matter to alarm him.

"But Yenser, the unschooled erection foreman, realized that the question was one of life and death, and for the time being drew off his men. Kinloch, the bridge inspector, a practical man, saw more clearly than any other man the fast coming disaster, and he made a two-days' fight to bring all the others to see the danger. Clark, the yard foreman, another "practical" man, took the same side, and clinched the proof of danger by his declaration that the chord was straight when it left the yard. But all these positive facts and the intuitive perceptions of the men of largest practical experience were over-ridden and silenced by the very men who should have had the best knowledge, the men trained in the scientific analysis of structures and entrusted with responsible charge of the work.

"Two men of scientific training, indeed, did appreciate the gravity of the situation. Cooper realized it, although not at all in the way that he would have done had he been on the ground with the failing chords before his eyes; and his realization came too late to save the lives of the workmen. McLure also, who had the advantage of a college training, saw the danger, but, as the man of least experience among those on the ground, he appears to have been least ready to assert his views strongly. And, according to Kinloch, he did not keep his promise to wire if Cooper considered the case alarming. These two exceptions, therefore, do not modify the force of the general statement.

"It need hardly be said that we do not draw attention to this matter as an argument against college training for engineers. No man need be one whit less practical as an engineer for a four-years course in an engineering school. The real lesson to be drawn is the lesson of humility. Let us never undervalue the experience of the man who actually handles and works the materials. Better yet, it is the duty of the engineer to be even more practical than the workman. The designer can learn things from the actual machine in the shop that he could never find out from the machines as laid out on the drawing-board. Theory is an absolute necessity; but let us lose no opportunity to check the theories with the behavior of the material in the mill and the structure in the field.

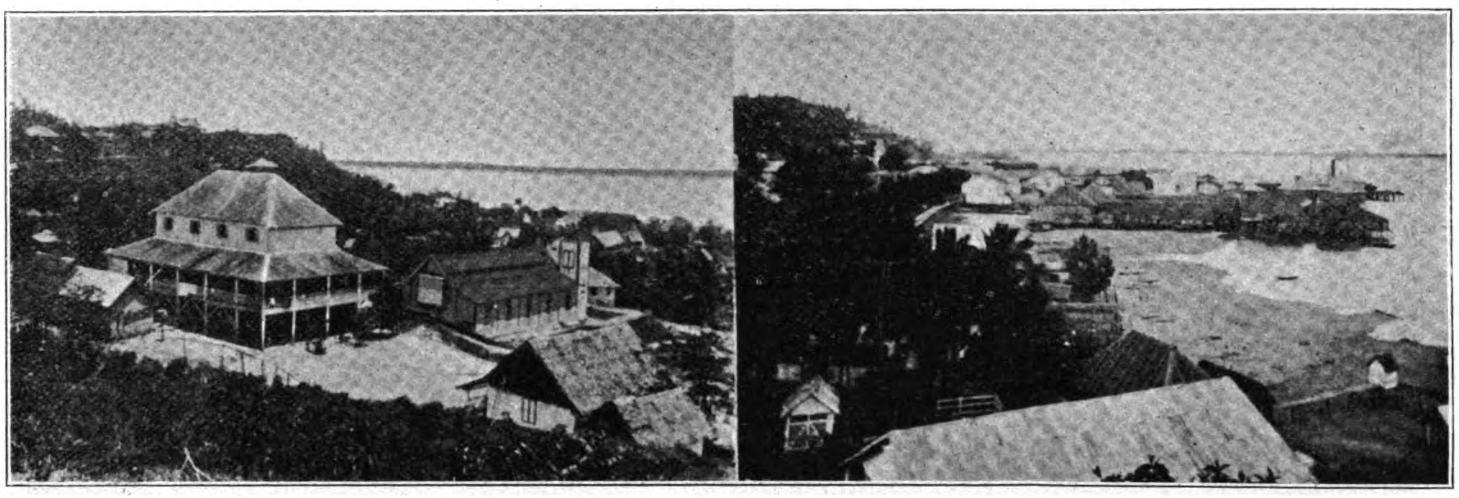
"It is of course true that things like this have been said many times before; but the trouble is, we have not taken them to heart. We have supposed that they referred to the men who try to do professional work with nothing but theoretical knowledge. It has not occurred to us that the men in the top ranks of the profession, who have been building great engineering works for nearly a lifetime, needed such admonitions.

"And yet that is what the event shows. We all of us, juniors and seniors alike, need to know more,—to test our theories constantly in the light of new knowledge, to welcome such knowledge when it comes, well attested, from any source. Yes, surely, the great lesson of this greatest disaster is the lesson of humility."

BRITISH NORTH BORNEO

The territory of the Chartered Company of British North Borneo extends to about 31,000 square miles and has a population of about 180,000.

Within the limits of the State are magnificent ranges of lofty hills covered with some of the finest timber in the world, and one of these ranges produces the highest point of Oceania, the beautiful, mysterious

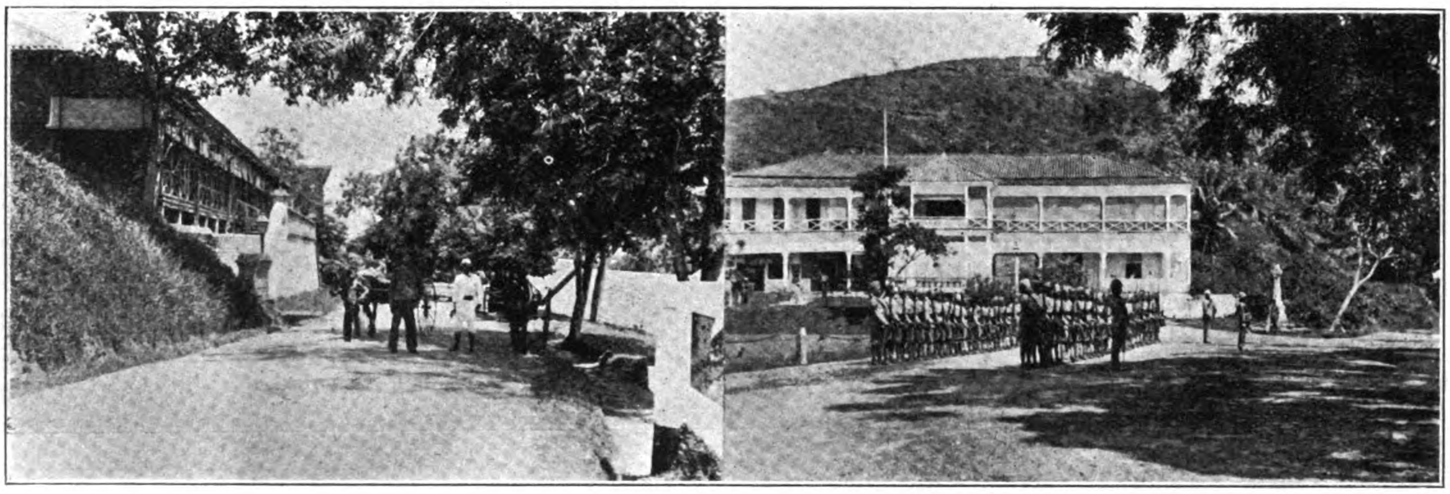


(F. Phillippe, Photographer.)

VIEW OF ST. MARY'S CONVENT TOGETHER WITH A VIEW OF SANDAKAN LOOKING EAST

mountain of "Kinabalu" (13,780 ft) round which center romance and legend with origin in the dim and distant past. Between the ranges are beautiful and fertile valleys and plains, well-watered, and only awaiting occupation and cultivation to prove their fertility—almost every product brought into life by a tropical sun can be grown and grown well—but at present pre-eminence is given to one viz: tobacco. This valuable plant thrives and flourishes as it does in Sumatra and Java—indeed there are not wanting those who predict for North Borneo tobacco a success as brilliant as that attained by the millionaire companies of the former island.

The cultivation of rubber is also carried on to a considerable extent, several companies having been formed to work this prof-



(F. Phillippe, Photographer.)

VIEW OF THE SANDAKAN CLUB AND SANDAKAN HOTEL WITH THE GOVERNOR'S GUARD OF HONOR DRAWN UP IN FRONT

itable product. There are thousands of acres suitable and doubtless within the next few years much of this land will be taken up.

Several firms are engaged in exporting timber to China. A good trade is done and this track will increase. Cutch works have been established for some time and are in a flourishing condition.

There is a large salt fish trade between Sandakan and Hongkong which is increasing yearly—it is almost wholly in the hands of Chinese. From most of the outstations a good trade is done in jungle produce—the railway also brings a lot from the interior to Jesselton and a large quantity of rotan is exported.

The China Borneo Co., Ltd., shipbuilders and engineers, have a patent slipway in Sandakan which can take vessels of 600 to 800 tons at any state of the tide. There are sawmills at Sandakan and Jesselton which turn out excellent work—at the former town a new ice and mineral waterworks with cold storage is in course of erection and will soon be finished; this will be a great boon as previously we have been dependent on Singapore and Hongkong. At Silimpopon on the East Coast (St. Lucia Bay) the "Cowie Harbour Coal Fields Company" are making great progress—they employ about 600 men, mostly Chinese, and have a large stock of coal at the mines and at the Depot on Sebatik Island where large vessels can load. A large stock is also kept in Sandakan. Many improvements have been effected in the towns, particularly in Sandakan, Kudat, and Jesselton where there are fine wide streets of good houses with shade trees on either side and good macadamised roads—living is cheap in all these places.

The State of North Borneo is surely and steadily increasing in prosperity, and in the near future it will become a bright gem in the Imperial Crown.

The total revenue for the year 1906 was $896,185.89 and the total expenditure was $497,744.90. It is expected that this year the revenue will be greatly increased.

The photographs accompanying this article will serve to show what an interesting place is Sandakan, the capital of the State.

A. W. R.

SKETCH OF HIS EXCELLENCY EDWARD PEREGRINE GUERITZ, GOVERNOR OF BRITISH NORTH BORNEO

At Jesselton, or Api Api as the Malays have it, on the West Coast of British North Borneo, is a high hill, curved like a half moon; overlooking on one side the immense distances of the China Sea, and on the other, the great mountain of Borneo, Kinabalu, or "The Chinese Widow," with range upon range of encircling jungle-covered hills clinging around her skirts.

On this wild and beautiful spot is built Government House, Jesselton. A large and roomy bungalow, with wide verandahs, modern fur-

niture and equipments, the present home of Edward Peregrine Gueritz, Governor of British North Borneo.

I found His Excellency in his office, surrounded by minute papers, which on learning my business he very courteously laid aside, and we were soon deep in reminiscenses of his very eventful life. The life of a born wanderer as his name very aptly points, whom interest and inclination have led into the far places of the earth.

Mr. Gueritz is a tall, distinguished looking gentleman, whose fifty odd years, although they have whitened his head, have not prevented him from still taking an enthusiastic and active interest in tennis and various sports. His manners are affable and courteous, as bespeaks the travelled Englishman; and his fund of characteristic reminiscence and amusing anecdotes evidently spring from a great appreciation of humor.

The strong impression one gets in talking to Mr. Gueritz is that he is in harmony with his surroundings, and has found that niche in life he is best calculated to fill.

Mr. Gueritz was born March 18th, 1855, in the little town of Bigbury, on the South Coast of Devonshire. His father, a clergyman of the church of England, from whom he received most of his education, is still living in the same county at the advanced age of 84. As a boy Mr. Gueritz sang in various church choirs for over 8 years, and the beauty, dignity and mystery of church music and oratorio, sank so deep into his young mind that after years of outdoor life in savage and almost inaccessible countries, it is still one of his greatest sources of enjoyment.

The first event of his life was his introduction to Rajah Brooke through his elder brother who had previously joined the Rajah's service in which he lived and died.

The romance, which has always attended the great Rajah's remarkable career, took possession of the boy's mind and fired his imagination. From that day he was destined for the East. He applied for and was given a cadetship in the Sarawak Service, and in 1874 he left England for Borneo.

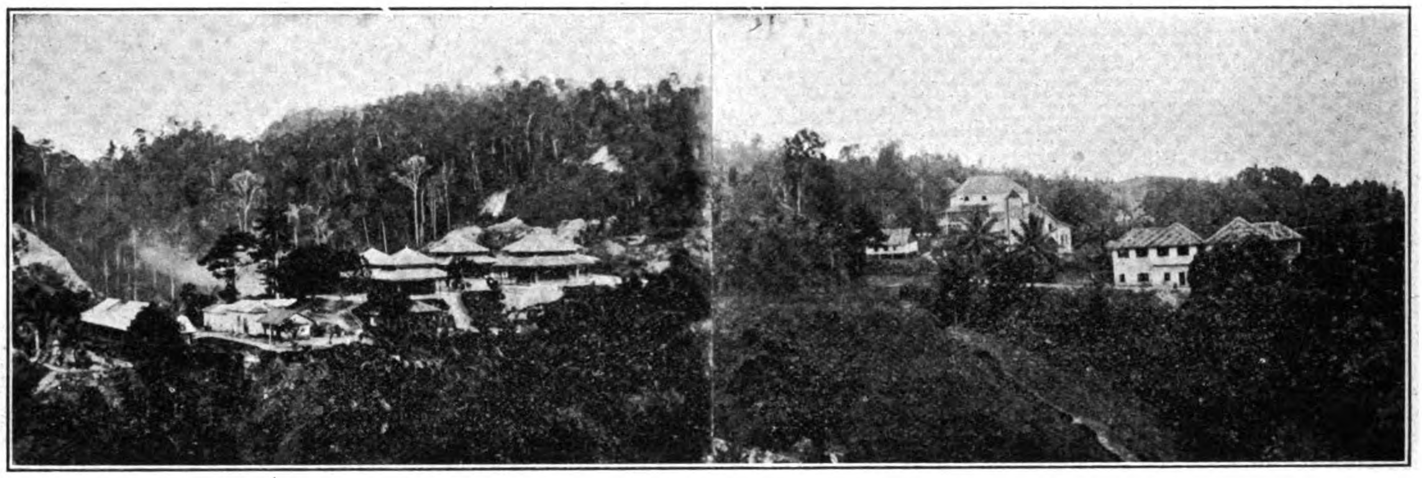
At the age of 21, after serving for 18 months in various parts of Sarawak, and enduring many consequent hardships, he was put in charge of the Residency of Bintulu. Here he contracted dysentery, and, after a serious illness, was forced to resign the service and return to England to recuperate.

In England he stayed two months, but finding his health showed little improvement in that climate, and that his funds were fast diminishing he sailed for New Zealand, where he was at once offered a position as correspondent of the Bank of New Zealand. This he accepted with the intention of remaining one year and then returning to the East, but at the end of that time he was advanced to a much better position, and resolving to make the most of his business opportunities, he remained for two more years, obtaining a business experience which, in Mr. Gueritz's own words, has been throughout his entire life of inestimable advantage to him.

The "Call of the East," however, at last grew too strong to be resisted, he felt that all his inclinations and his life work lay there, and in 1880 without prospect of employment, he left New Zealand for Singapore, going via Sydney, and thence to Shanghai in a sailing ship, to save expenses.

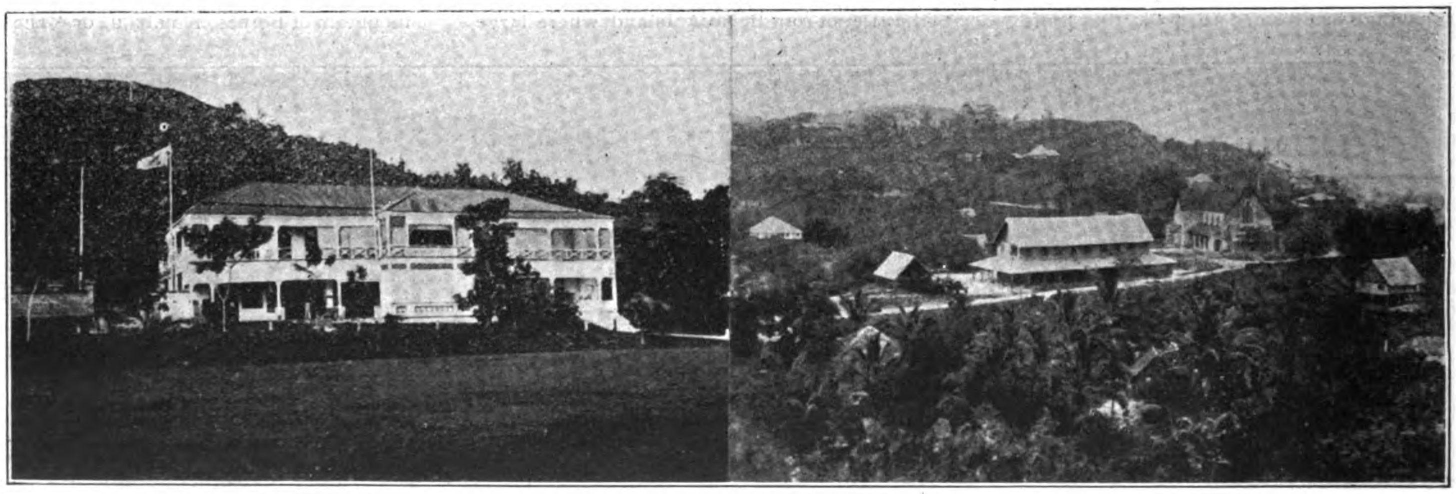
After a few days in Singapore he was offered an engagement with Capt. John Dill Ross, to report on the trade of North Borneo and the Sulu Archipelago. He had no sooner signed this contract when a letter arrived appointing him Assistant Resident on the West Coast of British North Borneo, a position of far greater importance; but, as Capt. Ross held him to his previous agreement he spent six months travelling and visited the various islands in and around British North Borneo and Sulu, and reporting on the condition of trade there. When his contract with Capt. Ross expired he was appointed Assistant Resident at Kudat, in the British North Borneo Service. This term of service proved to be the most stirring period of Mr. Gueritz's career. His district extended as far as Tuaran on the West Coast, and, in the various comings and goings in the exercise of his duties, he had many exciting and dangerous adventures. At one time after visiting Abai, he started to return to Kudat in a gobang, or native boat, and was caught in such a bad storm that it kept him at sea for two nights and days without provisions, unable to land on account of the rough breakers caused by the character of the coast. The boat finally sprang a leak and all regarded the situation as desperate; finally on the morning of the third day he was rescued off the coast of Sapang Manguio, the most Northern point of Borneo, by H. M. S. "Magpie" then surveying in those waters.

Another interesting incident happened about this time. The natives of the district border-



(F. Phillippe, Photographer.)

NEW ROMAN CATHOLIC CHURCH AND MISSION AND VIEW OF THE CIVIL HOSPITAL AT SANDAKAN



(F. Phillippe, Photographer.)

SANDAKAN HOTEL WITH BEHN MEYER & CO.'S OFFICE ON THE LEFT AND VIEW OF THE PROTESTANT CHURCH AND SCHOOLS

ing Marudu Bay were giving trouble. One powerful Bajau Chief, Serib Alun, particularly, opposed the chartered rule, less by active opposition than by every other means. He, however, was at last reported to be harboring certain outlaws.

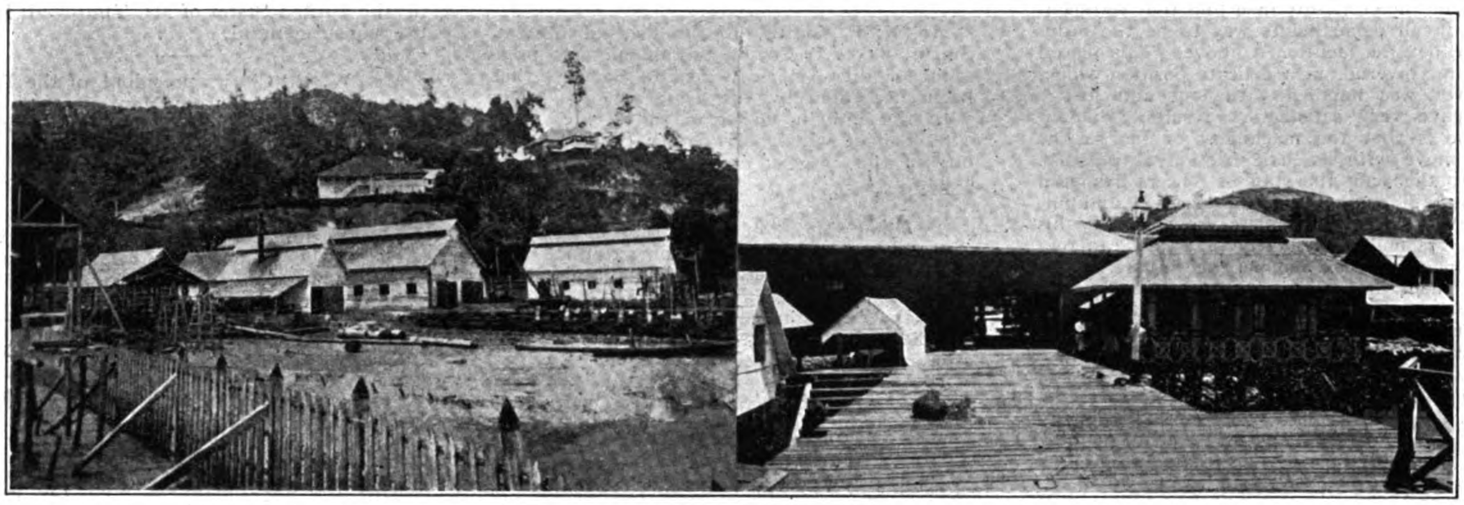
Mr. Gueritz being at the time on a launch anchored off the Tandek river heard of this and sent a messenger to the Serib ordering him to come on board. In the course of a few hours he came, and was ushered into the cabin where Mr. Gueritz and two unarmed Europeans were sitting. The Serib wore his very best Kris (native knife) which he was requested to

took him as far as Singapore and provided him with a passage. In Singapore the Serib told Mr. Gueritz that he had no animosity whatever against him or the Government. He had lost the game and he knew it, ending a somewhat penitential dissertation, by requesting a loan of $2.

The next day he made his will, Mr. Gueritz witnessing it, and after that he sailed for Mecca and died on the voyage.

During the Kudat term of service Mr. Gueritz also directed and came successfully through an epidemic of cholera, and one of small-pox, such a time being unusually trying as the

All our provisions were tinned and came most irregularly on account of the difficulties of transportation. Ours was the only house in the place, the upper floor was our private dwelling and the lower, the gaol and Government office. At first I could not speak a word of the language, and when my husband's duties took him into the jungle which happened two weeks out of four, I was left entirely alone with my little girl." Such a life was calculated to test the courage and endurance of the bravest woman, but Mrs. Gueritz rose to the occasion having followed her husband through all his varying fortunes with a rare devotion.



(F. Phillippe, Photographer.)

THE CHINA-BORNEO CO.'S PATENT SLIPWAY, SHIPBUILDING PLANT AND ENGINEERING SHOPS—SLIPWAY TAKES VESSELS TO 800 TONS ANY STATE OF TIDE—VIEW OF THE CUSTOM HOUSE AND WHARF

remove. He declined to do so. When again requested, he asked in an insolent tone, what would happen if he refused.

Mr. Gueritz told him that such a possibility had not occurred to him. He hesitated for a moment holding in the only weapon in the room the key to the situation. Subsequent events showed that he knew at the time his career was ended, and the question evidently came into his mind whether an amok with a white man as the victim would not be a picturesque and effective termination of it. He, however, decided in the negative, for after a few moments' reflection he opened his belt and placed the kris at his right hand on the table saying "I will put it here," but, immediately he released his hold on the weapon, Mr.

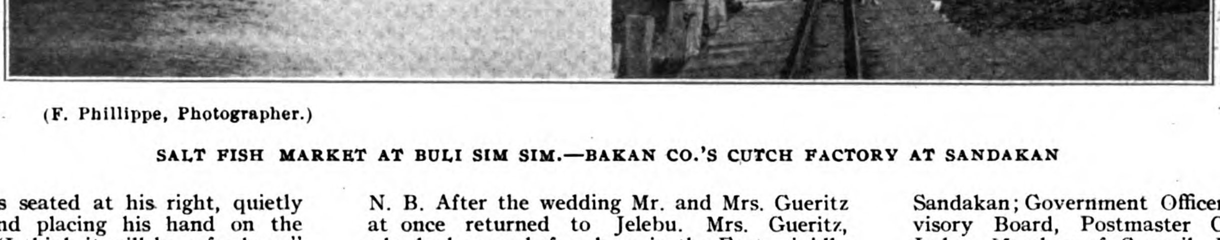
natives, and especially the Chinese, have a great fear and dread of European remedies.

Finally, in 1884, not finding the prospects for advancement very promising, he resigned his appointment and returned to England. Coming out to Singapore again in 1885 he obtained through the courtesy of the Colonial Secretary at Singapore an appointment as Collector of Land Revenue at Sungei Ujong in the Straits Settlements, and after 6 months of this work he was sent to hoist the British Flag at Jelebu in the Federated Malay States. Here he was Collector and Magistrate, and during his term of service he went to England and married, in 1886, Annie M., Cole, daughter of Maurice Cole of Paston Hall, Northamptonshire, and Ivy House, Straurer, Wigtonshire,

At the end of four years Mr. Gueritz contracted small-pox and on his convalescence he and his family were obliged to return to England.

In 1890 Mr. Gueritz resigned the Jelebu appointment and was appointed Acting Resident of Labuan, which was then under the administration of the British North Borneo Co. In Labuan he also filled the position of Judge, and finally that of Governor from 1903-1905, holding the King's commission as such, whereas as Governor of British North Borneo he holds the commission of the Court of Directors, subject to the approval of His Majesty's Government.

From that date he has filled the following positions in the service, i. e. District Magistrate,



(F. Phillippe, Photographer.)

SALT FISH MARKET AT BULI SIM SIM.—BAKAN CO.'S CUTCH FACTORY AT SANDAKAN

Gueritz, who was seated at his right, quietly leaned across, and placing his hand on the kris calmly said "I think it will be safer here," laying it down beside himself.

The details of his case were then dealt with, and eventually he was banished. He expressed a wish to go to Mecca, and Mr. Gueritz

N. B. After the wedding Mr. and Mrs. Gueritz at once returned to Jelebu. Mrs. Gueritz, who had never before been in the East, vividly describes her life there. In her own words, "Jelebu was a little clearing in the heart of an immense jungle—50 miles from the nearest port, 25 of which was through rough jungle.

Sandakan; Government Officer on Chinese Advisory Board, Postmaster General, Sessions Judge, Member of Council, Editor, Judge of Chief Court, Secretary to the Governor, Government Secretary, Government Commissioner, Judicial Commissioner, Sept. 13, 1903; Acting Governor 1904, Governor January 1905.

It is Mr. Gueritz's great ambition to open up the country, to see, in his own words, a net work of roads and railways, throughout all B. N. Borneo and the bustle of a lively and prosperous community coming in and going out of her various ports, but all efforts have been hitherto handicapped by lack of money, without which very little can be accomplished in a country so remote, and so thinly populated. That it possesses wonderful possibilities and great wealth he firmly believes.

At present he is most interested in the planting of rubber on the West Coast which promises to be a great success. As a Governor his first duty was a particularly trying one. The Court of Directors informed him that retrenchment in all departments was to be the order of the day, as mentioned above. This placed the new Governor in a delicate position which, however, was handled with tact and justice and gave very satisfactory results. His endeavor is that the machinery of the service shall move with as little friction as possible, and to this end, the staff of officers has been and is still being constantly revised and improved. The young cadets are especially his care. He makes them feel that they can rely on him, when their inexperience in the service leads them into mistakes or trouble, but he also keeps them up to the standard of work he himself sets, well knowing that loafing in a tropical country, where temptations are proverbial, can be, and has been, the beginning of the end, of many a young man's career.

Mr. Gueritz's hobby is landscape gardening, an occupation for which the beautiful country and climate of Borneo gives a wide scope.

Government House, Sandakan, with its trim tennis lawns, and well arranged grounds, suggests more an English Manor House than a "Bungalow in Borneo," and the new one at Jesselton, having a more beautiful situation, will no doubt rival it in a few years.

After his gardening and various duties of his office Mr. Gueritz likes a game of billiards on his new and cherished billiard table, a go at tennis, or a long walk in the cool of the afternoon to note the various improvements that are being made. His tastes are simple and domestic with an occasional look in at the Club for more billiards.

He is a delightful host, but gives most of the various social duties of his position into the capable hands of his charming wife, who fills her position as "first lady of the land" with dignity and graceful tact.

ELIZABETH B. JOHNSTON.

PERSONAL

Mr. R. Black, manager of the New Amoy Dock Company, Limited, has been granted a well-earned leave of absence after ten years' continual service in the interests of the company. The following excerpt from Chairman Nilson's speech with its reception by the shareholders indicates the high regard in which Mr. Black is held:

"The general managers have granted leave of absence to Mr. R. Black who has served faithfully as manager of the Dock for about ten years, and I am sure we all wish him every happiness and success during his well-earned holiday. (Applause.)"

Governor-General Paul Beau of Indo-China was decorated by the Japanese Emperor with the Grand Cordon of the Rising Sun while at Tokio enroute to Paris via the United States. His Aide-de-camp, Major Faucan, who accompanied him, was also honored by the insignia of the Fourth Order of the Rising Sun.

Mr. C. McArthur succeeds the Hon. John Anderson to the vacancy on the Tanjong Pagar Dock Board, made by the latter's resignation.

Mr. J. W. Ragsdale, American consul-general at Tientsin, has been ordered to St. Petersburg and Mr. E. T. Williams, secretary to the legation at Peking, succeeds him.

Mr. Ross Thompson, manager for Messrs. Butterfield & Swire at Newchwang, has been assigned to duty as manager of the company's branch at Tientsin succeeding Mr. Elkins who goes to Hongkong.

Mr. P. H. Henshaw, deputy traffic manager of the Federated Malay States Railways, who is acting traffic manager during the absence of Traffic Manager Cook now on leave, will very probably be appointed traffic manager of the Johore State Railway upon the completion of that road. The work of construction will probably be completed by the return of Mr. Cook.

Mr. N. F. Smith, of the firm of Messrs. Smith, Baker & Co. of Yokohama and president of the American Asiatic Society, has been decorated by the Emperor of Japan with the Fourth Order of the Rising Sun. The firm of which Mr. Smith is member is one of the largest tea exporting houses in Japan.

President Yagin, of the Formosan Bank at Taipeh, left last month for an extended tour of Europe and America. It is understood that this trip is fraught with results bearing upon the development of the natural resources of the island by the interesting of foreign capital in those adventures.

Mr. J. B. Scrivenor, whose interesting reports on the mining industry of the Federated Malay States have been so widely read, has won a well merited promotion in the position of senior warden of mines for the F. M. S.

Mr. J. Trump has been appointed to the important position of director of public works for the F. M. S., according to the late advices from Kuala Lumpur. This department is one recognized as more closely allied with the successful development of the States than any other bureau.

Mr. J. C. G. Spooner of the Malay States Railways has been appointed to act as divisional engineer of the Southern Division of the system.

Mr. Lester Maynard, the American Consul at Sandakan, has been assigned to duty at Vladivostok.

Mr. J. R. Brazier will succeed Mr. G. Brown who has been in charge of the Peking Syndicate's interests in China. Mr. Brown goes to London in the interests of the company. It was Mr. Brown who conducted the negotiations on behalf of the Syndicate for the repurchase by China of the Shansi mining concessions.

Mr. Keith Arbuthnot of the firm of Messrs. Sanderson & Co., produce brokers of Colombo, would seem to be entitled to rank with many of the uncrowned industrial kings if his connection with the development of the tea and rubber growing industries be taken into account. A Colombo contemporary announces that, in addition to being director of the New Sumatra Rubber Company recently floated with a capital of £60,000, he has a similar connection with the following representative corporations:

Dimbula Valley (Ceylon) Tea Company, Ltd.; General Ceylon Rubber and Tea Estates, Ltd.; Inambari Para-Rubber Estates, Ltd.; Linggi Plantations, Ltd.; London Asiatic Rubber and Produce Company, Ltd.; Perak Rubber Plantations, Ltd.; (Chairman) Sumatra Para Rubber Plantations, Ltd.; Tandjong Rubber Company, Ltd.; United Serdang (Sumatra) Rubber Plantations, Ltd.; Wheal Commerce Tin Mines, Ltd.

It is announced that Taotai Wong Kokshan, who has held the position of Chinese Commissioner of the Shanghai-Nanking Railway, has been appointed commercial manager of the Ping-han-yeh Coal and Iron Company of Hankow.

The vacancy in the directorate of the Hongkong and Shanghai Banking Corporation occasioned by the absence from the colony of Mr. G. H. Medhurst has been filled by the appointment of Mr. E. G. Barrett, acting manager of Messrs. Dodwell & Co.

Mr. W. P. Waddell has succeeded Mr. W. A. Grieg who resigned his position as member of the Tanjong Pagar Dock Board, recently.

Mr. George E. Chamberlain, vice and deputy consul-general at Singapore, is in charge of the consul-general's office during the absence in the United States of Mr. Thornwell Hayes, the consul-general.

Mr. W. P. Clark, president of the Insular Lumber Co., sailed from Manila early in April for the United States. His home is in Belmont, New York.

Sheng Kungpao has been directed by the Peking government to take charge of the reorganization of the Hanyang Iron Works so as to be prepared to fill the prospective orders for railway supplies and arms for the government.

Mr. H. D. C. Jones, formerly of the Manila branch of the Hongkong and Shanghai Banking Corporation, has been appointed manager of the branch at Yokohama.

Mr. Field, assistant traffic manager of the Burma Railways, has accepted the position of district superintendent in Ceylon.

The departure of Mr. Birch, British Resident at Perak, last month for Europe was marked by the expressions of regret at his departure from the state where he has labored so successfully. Everybody, official and unofficial, turned out to see Mr. and Mrs. Birch off at the Taiping Railway station, to give them an enthusiastic send off and wish them buen viaje, according to the *Perak Pioneer* as evidence of the high regard in which, Mr. Birch and his charming wife are held.

The Hon. John Fowler, consul general at Chefoo, sailed last month for Boston via Europe on account of his health. He was given a rousing despedida on the eve of his departure.

The Hon. H. Keswick has assumed the duties of chairman of the Hongkong Chamber of Commerce, succeeding Mr. A. G. Wood.

Sir Thomas Jackson, Bart., has been appointed chairman of the Imperial Bank of Persia, the position left vacant by the death of Sir Lepel Griffin.

Mr. A. G. Cox, chief divisional engineer outside the Wall for the Imperial Railways of North China, will succeed Chief Engineer Tucky as chief engineer at Tientsin, the latter having been appointed chief of the Northern section of the Tientsin-Pukow line.

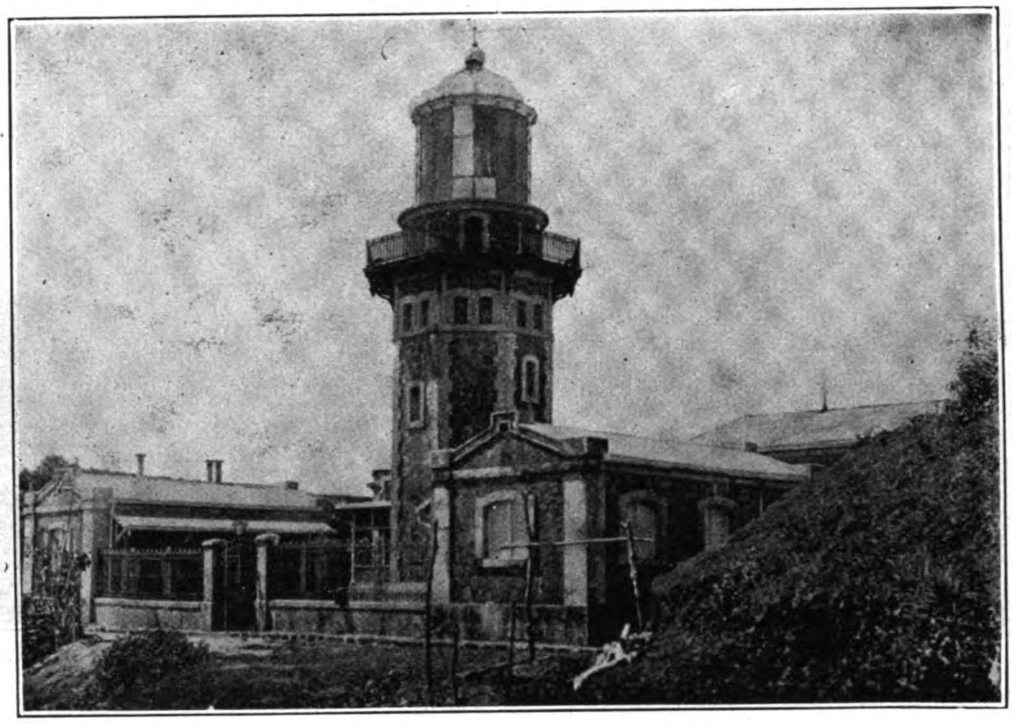
Mr. J. D. Clark, editor in chief and managing director of the Shanghai *Mercury*, accompanied by Mr. H. T. Butterworth of Messrs. Butterfield & Swire, left Shanghai for Europe last month *via* the Trans-Siberian route.

Mr. W. T. Payne, formerly representative of the Canadian Pacific Railway at Yokohama, has been promoted to the position of general manager for the Far East. He will make his headquarters at Yokohama where he is exceedingly popular. Mr. Payne has had the distinction of having been twice decorated by the Emperor.

Mr. M. S. H. McArthur, resident at Labuan, has been appointed federal secretary at Kuala Lumpur, and Mr. J. F. Owens succeeds him.

LIGHTHOUSE SERVICE OF THE PHILIPPINE ISLANDS

At the time of American occupation of the Philippine Islands there was only one light in operation: that on Cape Melville, Balabac Island, south of the Island of Palawan, marking the entrance between the China Sea and the Sulu Sea. As is the custom in time of war, the Insular Spanish authorities had ordered all lighthouses to be extinguished when it was found that an attack on Manila was contemplated by the American Navy. It appears that this order was carried out with all lights and thirty-one buoys in position. The steamer "GENERAL ALAVA" was borrowed from the Navy and the two lighthouse officers made a complete inspection trip of the islands. It was found that, partly due to neglect and partly to wanton abuse by the insurgents, all of the light stations were in urgent need of repairs, and this item was taken up before all others. However, the lack of funds and transportation facilities, and the lack of materials in the Manila market, were such that not until



CAPE ENGAÑO LIGHT STATION—NORTHERN PART OF LUZON ISLAND; LAT. 18° 34′ 52″ N., LONG. 122° 07′ E.; FLASHING WHITE; SHOWS DOUBLE FLASH EVERY 30″—FIRST ORDER, 315 FEET ABOVE SEA LEVEL; HEIGHT TOWER, 47 FEET; VISIBLE, 25 NAUTICAL MILES

except the one mentioned above, where the order was never received. The keeper in charge of this light kept his light burning up to June 30, 1899, without assistance, and was paid for his services from May 1, 1898 to that date, by the Philippine Government. Due to the unsettled condition of affairs immediately after American occupation, and the outbreak of the Insurrection following soon thereafter, little or nothing was done in lighthouse matters until 1901. A few lights were re-lighted, some being maintained by the Quartermaster Department, and some by the office of the Captain of the Port, but, naturally, only a passive interest was taken by those offices.

ORGANIZATION OF THE LIGHTHOUSE SERVICE

When the Civil Government was organized and the United States Philippine Commission installed, that body realizing the urgent necessity for an efficient lighthouse system in a country like the Philippines, where practically the only means of transportation both locally and to foreign countries is by water, the subject of the Lighthouse Service was among the first to be taken under discussion and the first step toward organizing a Lighthouse Establishment was taken in October, 1901, when Act No. 266 was passed, creating the Bureau of Coast Guard and Transportation—of which the Lighthouse Service forms a part. Officers of the Army and Navy were detailed for duty with the Bureau, a Lieutenant-Commander as Lighthouse Inspector, and a Captain of the Engineer Corps as Lighthouse Engineer. At that time there were twenty-seven lights in operation August, 1902, was the repair work started. The purchase of two lighthouse tenders ("PICKET" in August, and "CORREGIDOR" in October, 1902), and the appropriation of funds for lighthouse purposes soon placed the Lighthouse Service on a working basis, and the work began in earnest.

REPAIRS

Repair parties were sent to stations with instructions to make a complete overhaul and general repairs. These repairs consisted chiefly of repairing the roof, renewing and repairing the floors, doors and windows of the dwelling and of repairing the windows, ventilators and roof of the tower and lantern. In some cases entire new outhouses had to be constructed, and, at one station (Lusuran, Guimarás Island), a heavy concrete retaining wall had to be built around the brow of the hill upon which the lighthouse tower and dwelling are situated to prevent the threatened sliding of the structure into the sea. As soon as the financial status of the Lighthouse Service would allow, civil engineers and inspectors were employed and a regular and efficient system of inspecting the work in progress at various stations, and of determining the repairs needed at all other stations, was commenced.

UNCOMPLETED STATIONS

At the time of the outbreak in 1896 the construction of four large stations was in progress, viz. Bugui, Jintotolo, Capul, and San Bernardino. The latter was nearly completed—in fact the light was already in operation—and, being the more important of the four (1) was the first one at which work was started. It was found, however, that during the prevalence of the N. E. monsoon a landing at San Bernardino was impossible and the working party had to be taken off in September, 1903, with the work still uncompleted. This station was not entirely completed until July, 1904. Bugui and Jintotolo were completed and third-order flashing lights installed. Capul, which was designed by the Spaniards to be a sixth-order fixed light was made a third-order flashing light and commenced burning in November, 1903.

NEW LIGHTS

An inventory of the Lighthouse warehouse in Manila was made and several cases of expensive lighthouse apparatus, clock-work, two steel towers, various spare parts of apparatus, and a large quantity of cleaning material, chimneys, wick, etc., were found. The largest of the steel towers (2) was erected on Apo Reef, off the west coast of Mindoro, and a third-order flashing light was installed. Iron towers were found at the sites of proposed light stations on Tanguingui Islet (northwest of the northern point of Cebu), and Capitancillo Islet (off the northern part of the east coast of Cebu). These were erected and fourth-order flashing lights installed upon each. At Bagacay Point, east coast of Cebu, (3) a hexagonal-shaped tower 69 feet high was erected and a third-order flashing light installed. This tower is built of masonry for the first 18 feet, the remainder being of concrete blocks. The first tower to be built entirely of reinforced concrete is that on Maniguin Island, off the west coast of Panay. This tower is 97 feet high, cylindrical in shape,and supports a third-order flashing light. An iron tower was erected on Bagatao Island, at the entrance to Sorsogon Bay, and a sixth-order flashing light installed thereon. A cylindrical reinforced concretes tower 101 feet high was constructed on Cape Bolinao, west coast of Luzon, and a third-order flashing light installed. A similar tower is at present in course of construction on Batag Island, northeast of Samar. Sixth-order light stations have been built at the entrance to Subic Bay, and on San Fernando Point, Union Province. Besides these large lights, many minor lights, such as port lights, harbor lights, etc., have been established.

DIFFICULTIES OF CONSTRUCTION

Major Spencer Cosby, Corps of Engineers of the United States Army, who was Lighthouse Engineer in the Philippine Islands for about two years, read a very interesting paper on Lighthouse construction in the Philippines, before the American Society of Civil Engineers on February 6th, 1907, of which the following is an extract (4):

"When the American engineers first took up the matter of lighthouse construction, they were confronted with conditions differing greatly from those met in similar work in the United States. In some respects the problem appeared to be of easier solution. There are practically no fogs along the coasts of the Philip-

(1) San Bernardino is situated in San Bernardino Straits, south of Luzon Island, through which channel all vessels pass coming from or going to the United States via Guam, and nearly all vessels running between Japanese, Chinese, Philippine and Australian ports use this same passage.

(2) This tower is 113 feet high. A part of the tower had been thrown into the Pasig River, presumably by the Spaniards, and was found by one of the dredges in 1903.

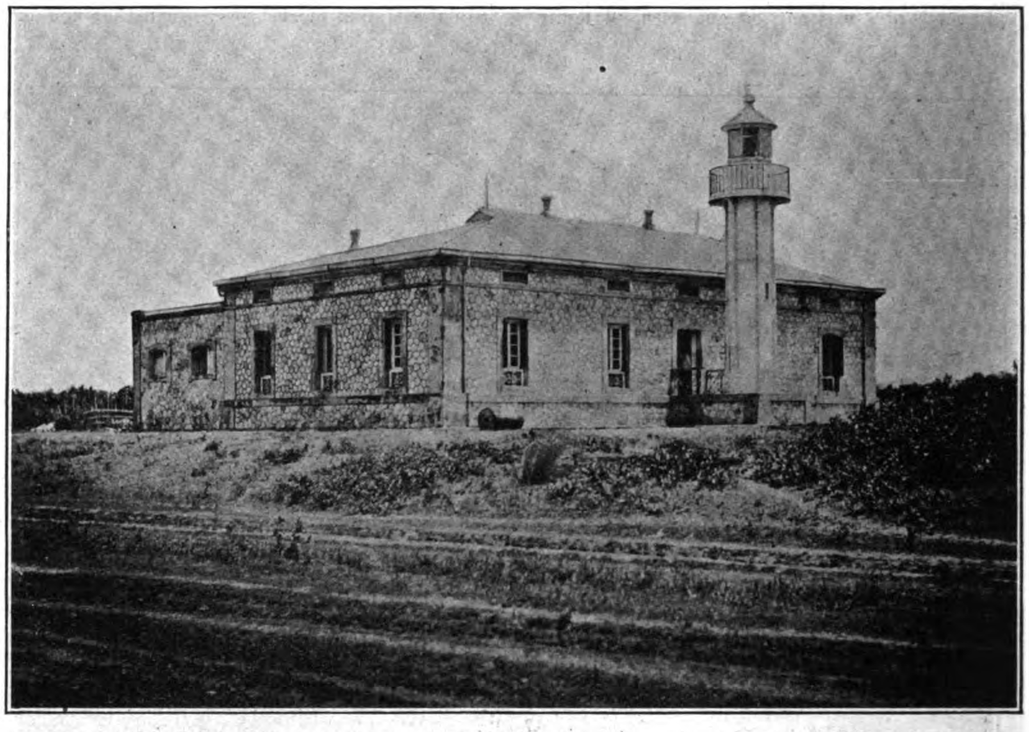
(3) There was a small fixed light at this point, but the tower was so low and the light so weak that it was frequently confused with the lights of fishing craft.

(4) See "Transactions of the American Society of Civil Engineers," Vol. LVIII, page 278 (1907).

pines, and both the transparency of the atmosphere and its refractive power are greater, according to the observations of the Spanish engineers, than along the Atlantic coast in temperate latitudes. These conditions make the lights themselves more effective, and render unnecessary the fog signals which are the most unsatisfactory parts of our modern lighthouse system. Then, too, a working season extending over the whole year, the absence of frost, and the cheapness of labor were factors which promised to be of material advantage in carrying on construction work.

To offset these, however, were others of the opposite kind—typhoons of frequent occurrence and of cyclonic violence along the paths of their centers; earthquakes of a mild character taking place constantly but in certain districts reaching at times the most destructive intensity; the presence everywhere of the termite or white ant (the great destroyer of woodwork); the tropical humidity adding to the difficulty of protecting iron and steel properly; and the increased cost and long delays in obtaining many of the tools and materials of construction. Labor was found to be cheap in about the same degree that it was efficient. A native carpenter, mason or blacksmith at a dollar a day, will do no more than one-half to one-quarter as much work as an American skilled workman, and will require more constant and careful supervision. Unskilled labor at from 20 to 50 cents per day perform just about that much worth of work according to American standards. One peculiar difficulty was met in securing workmen to go to some of the isolated stations. The Filipino is strongly attached to his family, and many of the most desirable men refused to leave home for even a few months unless they could take their entire families with them. The difficulty of transporting and housing at the site such a mob of men, women and children dwindled, however, when it was found that each family carried in a small sack its entire belongings, including the cooked rice to be eaten on the voyage, and they expected nothing more in the way of accommodations than sufficient room to lie down anywhere above or below deck, and that a few sticks of bamboo and bundles of nipa (palm leaves used for thatching walls and roofs) provided them with all the materials needed for building a home. It should be mentioned that the labor conditions improved materially as time went on, as the lazy and incompetent were weeded out, and as those retained became used to steady work of the kind required. With fair treatment and proper training, it is believed that the Filipino can be developed into a more efficient and more reliable laborer than the negro of the South."

Since the above was written, there has been such a remarkable increase in the efficiency of the Filipino artisan and laborer that it is only just to correct a wrong impression which otherwise might be given. The Filipino machinists in the lighthouse repair shop have turned out some very beautiful work; work that requires the utmost precision and good judgment, such as the clock-work for operating the sixth-order lights mentioned later on in this article, and the finish of their work will stand a close comparison with similar work done by the best French mechanics on apparatus purchased in Paris.



LINAO LIGHT STATION, NORTH LUZON; LAT. 18° 22′ 42″ N., LONG. 121° 35′ 21″ E.; FLASH WHITE EVERY SECOND; SIXTH ORDER; 36 FT. ABOVE SEA LEVEL; HEIGHT TOWER, 30 FT. VISIBLE 11 NAUT. MILES

IMPROVEMENT OF LIGHTS

Existing lights have been improved from time to time and many defects remedied. The "false flash" of various flashing light has been eliminated by the conversion of polygonal lanterns into those of cylindrical shape by the substitution of curved panes; and also by the re-adjustment and replacing of reflectors Several lights have been changed from fixed to flashing characteristics, and the range of visibility increased, where the height above sea-level would allow, by the substitution of prismatic lenses of greater scope, and later by the substitution of the incandescent system of lighting for that of the ordinary wick burner.

INCANDESCENT SYSTEM OF LIGHTING

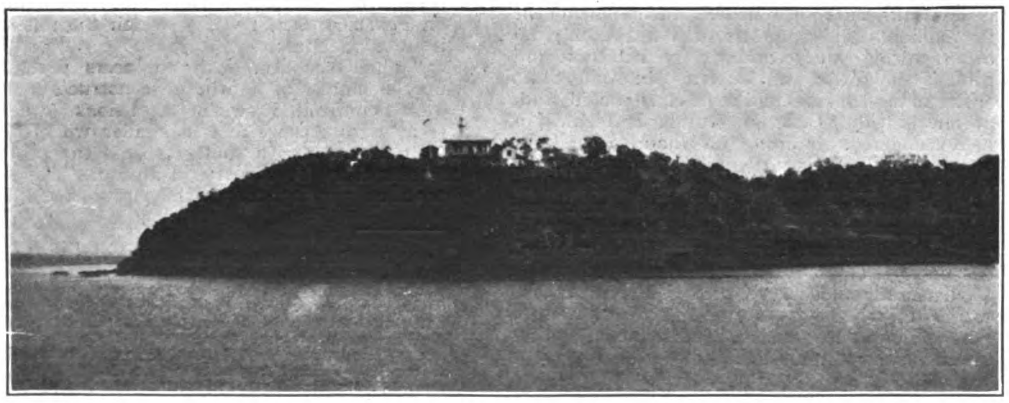
The principle of the incandescent system of lighting is the vaporization of petroleum by its injection into a vaporizer which is kept at a constant and very high temperature by the heat generated by a small auxiliary "Bunsen" tube at the base of the burner. The vapor thus produced passes through a diffuser and is there automatically mixed with the necessary amount of air for combustion, and issues from a wire gauze on the top of the burner, burning with a blue and very hot flame which raises a "Welsbach mantle" to incandescence. The pressure on the petroleum is obtained by means of compressed air, the combination of the reservoirs for the air and the oil, the burner connecting tubes, valves, etc., constituting the lamp, properly speaking. These burners are, in the large lights, superseding all other types of lighthouse burners using wicks, as they give economy in oil consumption, a great increase in candle-power and a greater simplicity in their operation and management.

WICK BURNERS

The principle of the wick burner is the same as that of the ordinary wick lamp, except on a much larger scale, some of the first-order lights using a burner of six wicks, the largest of which (No. 6) is about fifteen inches in circumference. The oil is fed to the wicks from a reservoir through a brass tube.

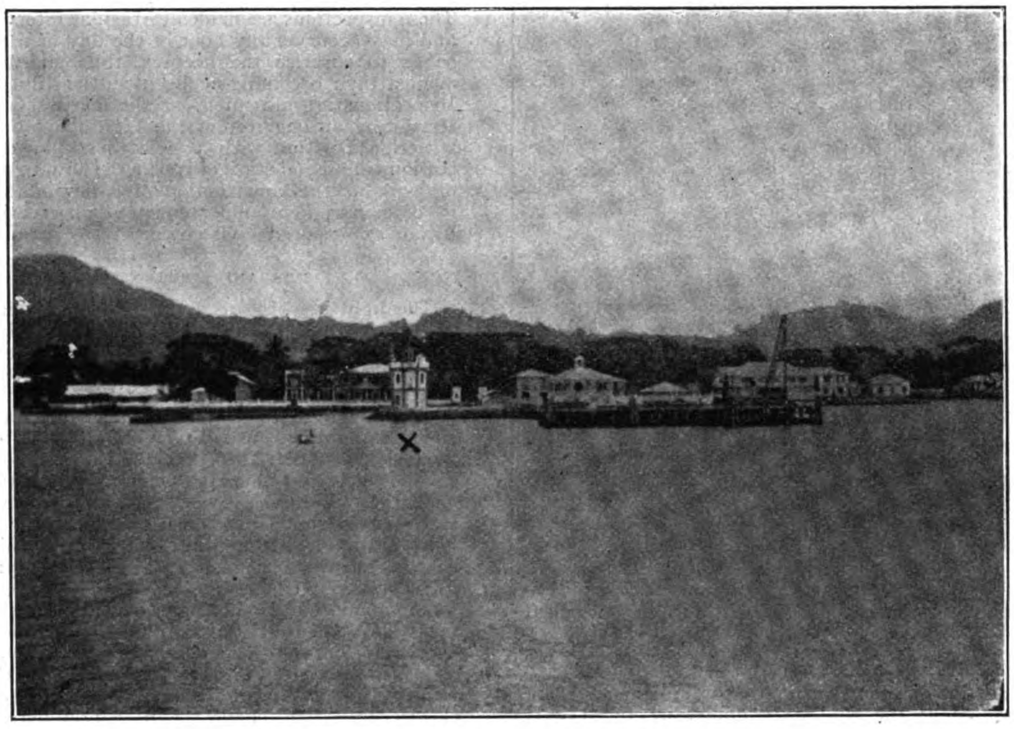
BUOYAGE

The system of buoyage in the Philippine Islands is practically the same as that in the United States. Buoys are divided into three classes, viz., first, second and third, according to their size, the first class being the largest. There are various shapes and styles of buoys: can, nun, cone, channel, spar, etc. The first four named are made of steel plate, and the



BAGATAO LIGHT STATION, BAGATAO ISLAND, ENTRANCE TO SORSOGON BAY; LAT. 12° 50′ 03″ N.; LONG. 123° 47′ 36″ E.; FLASH WHITE; FLASH EVERY SECOND; SIXTH ORDER; ABOVE SEA LEVEL, 135 FT.; HEIGHT OF TOWER, 29 FT.; VIS. 17 NAUT. MILES

last is made of wood, usually cedar or juniper. The Spanish Government maintained few buoys in the Philippine Islands. The approaches to Iloilo and Cebu were buoyed but not efficiently. A few buoys were placed promiscuously by private shipping firms, in various harbors, but with no defined system. As soon as practicable after the Lighthouse Establishment was organized contracts were let for the fabrication of buoys and their appurtenances, and when these were delivered, steps were taken to mark the channels leading into every important harbor and port in the islands. Much has been accomplished in this respect, and much still remains to be done. The channels leading into the harbors of Iloilo, Cebu, Tacloban, Catbalogan, Legaspi, and many other ports of more or less commercial importance have been marked with buoys, and the limits of many dangerous reefs in waterways have been marked in the same manner. With the constant increase of shipping in the Philippine waters occasioned by the growing importance of the many ports, the demand for buoys is increasing at a corresponding rate, and large numbers of these aids to navigation are being placed every year.



JOLO LIGHT STATION ON PIER AT THE TOWN OF JOLO, LAT. 6° 03′ 20″ N. LONG. 121° 00′ 20″ E.; FIXED RED LENS LANTERN; HEIGHT ABOVE SEA LEVEL, 37 FT., HEIGHT OF TOWER, 35 FT.; VISIBLE 7 NAUT. MILES

UNLIGHTED BEACONS

Unlighted beacons are established in harbors where leading marks are necessary, also upon shallow rocks, shoals, and like dangers to navigation, where it is impracticable to place buoys. They usually consist of wooden posts, of some native hard wood, set in concrete and surmounted by targets of the proper shape and color, viz., white diamond shape with red centers to be passed on the starboard hand entering, and white square shape with black centers to be passed on the port hand entering. Where marks are necessary at exposed points concrete pillars are erected, as they are better able to withstand the heavy seas and strong winds. Tripods of old iron rails, found in the port works warehouse, are used where the character of the bottom permits. As far as can be ascertained, the Spanish Government maintained no unlighted beacons in these Islands. The only aids of this class that were in position when the lighthouse service was organized had been erected by the Pilots' Association at the different ports, and by private shipping firms. Forty-one unlighted beacons have been established by the American Government since its occupation of the islands.

PURCHASES OF LENSES AND APPARATUS

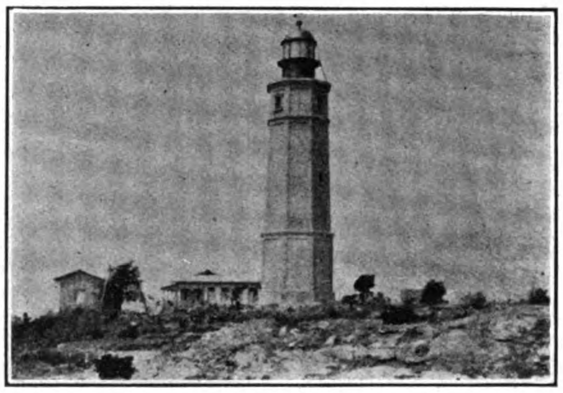
One of the principal items of expense of the Lighthouse Service is the cost of the lenses and clock-work comprising the illuminating apparatus. This, coupled with the long delay necessary for their purchase (1), was soon recognized as an important adverse factor of lighthouse construction in the Philippines. Little could be done to remedy the delay. When circular proposals inviting tenders for the furnishing of apparatus are sent out, the time of opening such tenders must be at least four months later. The usual time of delivery is from eight to ten months after the acceptance of the bid. In the preparation of circular proposals infinite care is taken to cover all details thoroughly, to guard against any misinterpretation by the bidders, thereby eliminating the delay that would otherwise be occasioned by letters of explanation. The bidders are always enjoined to take the same care in preparing their tenders.

(1) Lighthouse apparatus is manufactured in but two countries in the world—France and England. There are three plants in the former and one in the latter.

MACHINE SHOP

With the item of expense, however, a solution of the problem seemed to be in the establishment by the Government in Manila of a machine shop fitted expressly for the manufacture and repair of the clock-work and all other metal of lighthouse apparatus, so that it would only be necessary to purchase the glass lenses and prisms. It would cost more money to establish and maintain a plant for the manufacture of lenses and prisms than ever could be realized in its operation. The establishment of a machine shop also promised to be somewhat expensive. In the first place the building for the plant must be a strong one so as to reduce the possibility of vibration to the minimum and the machinery necessary for this class of work, in which many of the measurements are read by the vernier scale, must be of the most delicate adjustment and superior manufacture—the cost corresponding to the quality. Considering the weak financial condition of the Philippine Government in the early days of its organization, and that the establishment of such a plant was more or less of an experiment the only feasible plan of installing the machine shop was adopted, i. e., starting in on a small scale and gradually increasing it until the desired capacity is reached. A suitable building for this purpose was constructed of reinforced concrete on Engineer Island and a few of the most necessary machines were installed therein (1904). The motive power was supplied by electricity. An expert machinist skilled in the design and manufacture of instruments of delicate adjustment was brought from the United States and placed in charge of the shop.

The success of this experiment soon became apparent in the results obtained. Due to the urgent demand for repairs to apparatus of light stations then in operation little else was done in the shop for the first year or two, but this work was done at such a surprisingly low figure that the success of the lighthouse machine shop as an experiment was assured. Later, as more machinery was added to the shop, the construction of rotating apparatus for minor classes of lights was attempted—then the more important work of constructing apparatus for a larger light. A set of lenses for a sixth-order flashing light had been purchased from Europe. These were mounted in frames of our own casting, the clock-work and lantern were made in the shop, and thus a sixth-order illuminating apparatus was supplied at less than one-half of the cost were it purchased complete.



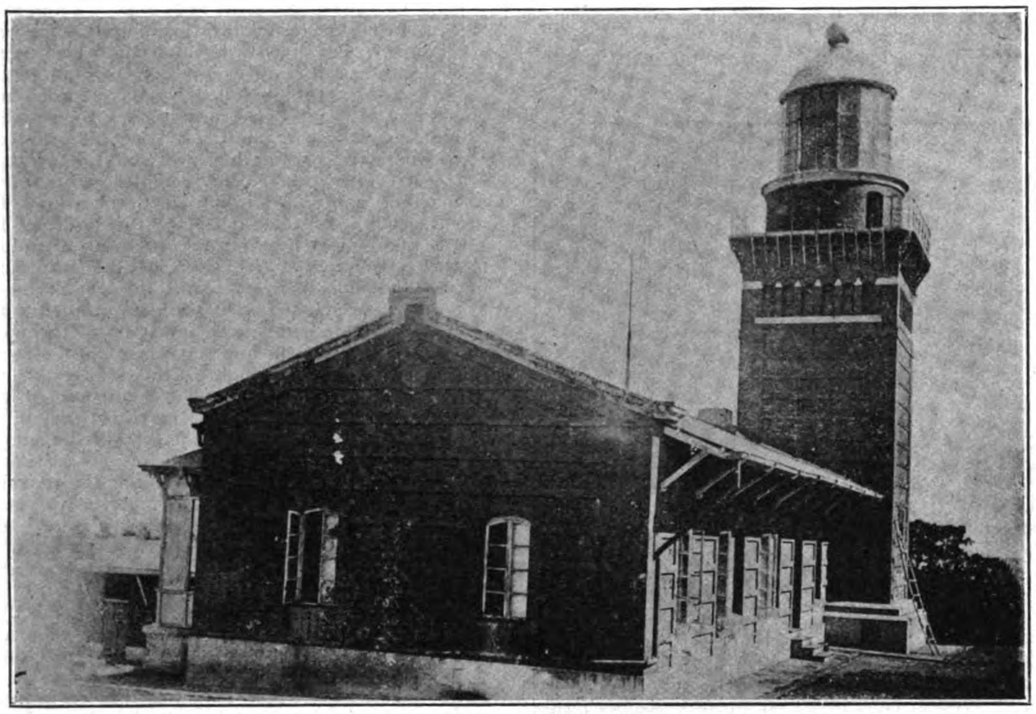
BAGACAY LIGHT STATION, EAST COAST CEBU AND NORTH ENTRANCE CEBU HARBOR; LAT. 10° 22′ 59″ N., LONG. 124° 01′ 07″ E.; FLASH. WHITE; SHOWS GROUP OF 4 EVERY 20 SECS. SEPARATED INTERVALS 2.5 SECS. FOLLOWED BY INTERVALS OF 12.5 SECS.; THIRD ORDER; HEIGHT LIGHT ABOVE SEA LEV. 143 FT.; HEIGHT TOWER, 69 FT.; VIS. 18 NAUT. MILES.

The following statements are submitted as illustrations of the great economy resulting from establishing the shop.

COST OF PRODUCTION OF SEVEN OCCULTING PORT LIGHTS MADE IN SHOPS

Range, 15 miles.

Lenses (purchased unmounted)	₱ 9,240.00
Casting for mounting same (made in Bureau shop)	1,241.95
Springs (purchased)	77.00
Miscellaneous materials	232.12
Labor	947.87
Superintendence	333.33
Power (electric current)	90.00
Wear and tear on machinery	151.53
Cost of seven lights	₱12,313.80
" " one light	1,759.11
" " similar light purchased complete	3,960.00
Saving per light	2,200.89
Percentage of gain	125.7%



CAPONES LIGHT STATION, WEST COAST LUZON; LAT. 14° 55′ 05″ N., LONG. 120° 00′ 15″ E.; FLASH. LIGHT, SHOWS FLASH EVERY 30 SECONDS; 229 FT. ABOVE SEA LEVEL; HEIGHT OF TOWER 65 FT.; VISIBLE 18 NAUT. MILES; FIRST ORDER

COST OF PRODUCTION OF ONE SIXTH-ORDER FLASHING LIGHT MADE IN SHOPS

Range, 15 to 18 miles.

Lenses (purchased unmounted)	₱ 1,500.40
Casting for mounting same (made in Bureau shop)	195.12
Miscellaneous materials	127.33
Labor	171.87
Superintendence	50.00
Power (electric current)	19.00
Wear and tear on machinery	34.92
Total cost	₱ 2,098.64
Cost of similar light purchased comple te	5,049.15
Saving	2,950.51
Percentage of gain	140.1%

Plans are at present in course of preparation for a complete fourth-order flashing light, to be constructed on the same basis as the above, and it is estimated that the percentage of gain will be even greater. Besides these important apparatus, many less important but, nevertheless, costly articles are being made at a good saving, such as oil tanks, burners, tools, instruments, etc., etc. A special kind of lamp for port lights has been designed and fabricated, which serves the purpose better in the cost of production, in durability, and in light, than any we can buy. Altogether, the lighthouse machine shop is probably one of the best paying investments of the Insular Government.

ADMINISTRATION

The system of administration of the Lighthouse Service is effective, though simple and inexpensive. When the construction of a new light station is contemplated, the views of the various shipping firms, agents, and masters are solicited; the site is examined by the Lighthouse Inspector, Chief of the Lighthouse Maintenance Division, and, if advisable surveyed by the Lighthouse Construction Division of which the Lighthouse Engineer is in charge. This data is then placed before the Lighthouse Board, consisting of the Director of Navigation as Chairman, the Assistant Director of Navigation, the Chief of the Division of Port Works, the Lighthouse Engineer, the Light house Inspector, and the Nautical Expert of the Bureau of Coast Surveys. If the decision of that body is favorable to the project, the appropriation of the necessary funds for the construction of the station is requested of the Philippines Legislature. After the station has been erected by the Lighthouse Construction Division it is turned over to the Lighthouse Maintenance Division for operation.

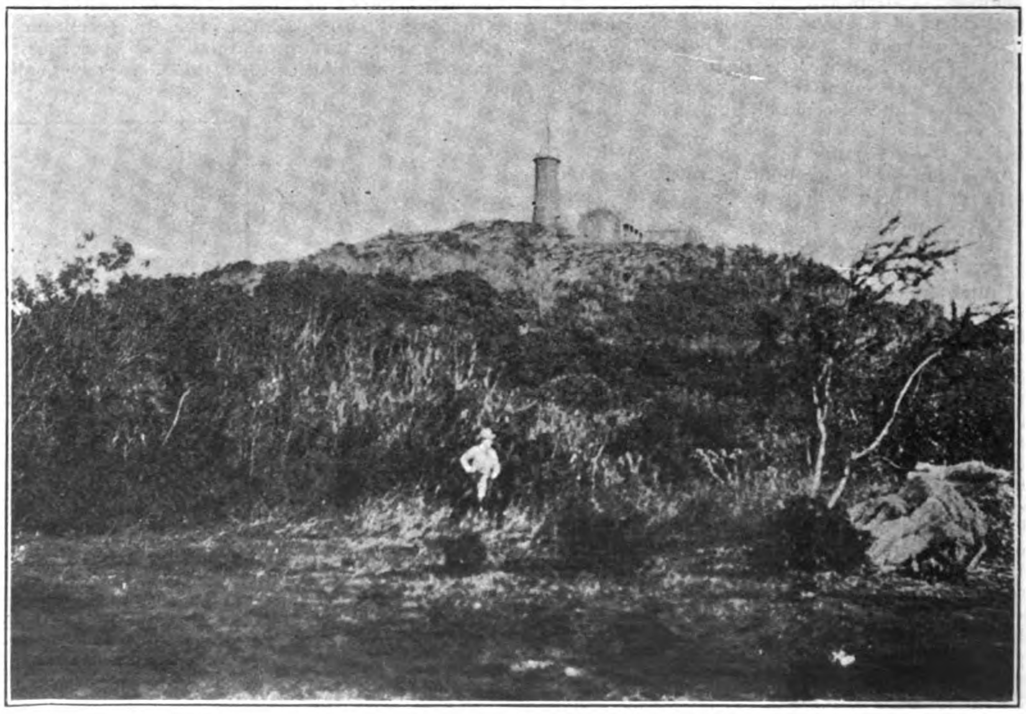
INSPECTION

All stations in operation are inspected by the Lighthouse Inspector and the Chief of Lightkeepers on an average of once in two months. These inspections are made at irregular intervals and may occur at any hour of the day or night so as to surprise the keepers, thus guarding against their becoming negligent in their duties. Inspections are also made at the necessary intervals by an engineer of the Lighthouse Construction Division with a view to keeping the stations in a good state of repair. The progress of work at the construction of a new station is, of course, kept under constant observation by an experienced civil engineer.

KEEPERS AND APPRENTICES

The light-keepers are appointed and trained in the Lighthouse Maintenance Division. They are usually originally appointed as second-class apprentices at fifteen pesos per month and are made first-class apprentices at twenty pesos per month when their efficiency warrants their promotion, usually after about four months' service. The period of apprenticeship is never less than one year, during which time the apprentices spend part of their time in the main office, in the machine shop, and at light stations. To qualify for an apprentice a man must be between the ages of 20 and 25 years, free from physical defects, of good morals, and able to read and write the Spanish language, and have an ordinary education, especially in the metric system. Preference is given those who have a knowledge of the English language and who have had some experience as mechanics. In contemplating the promotion of a keeper, the following points are considered: (The importance of each point is designated by its sequence in the list).

First: Physical condition and ability;
Second: Length of Service;
Third: Previous record;



CAPE BOJEADOR LIGHT STATION, NORTH LUZON; LAT. 18° 30′ 53″ N., LONG. 120° 35′ 35″ E.; FLASH. WHITE, ONCE A MINUTE; DURATION FLASH 15 SEC.; FIRST ORDER; HEIGHT ABOVE SEA LEV. 386 FT.; HEIGHT OF TOWER, 65 FT.; VISIBLE 26 NAUT. MILES

Fourth: Opinions of his superior keepers (taken from the quarterly efficiency reports);
Fifth: Knowledge of the English language;
Sixth: Date of last promotion. (Except in special cases, keepers are not promoted more than one grade at a time, and must serve at least one year in one grade before being promoted to a higher one).

The Filipinos, when properly trained and kept under strict discipline, make excellent light-keepers. Their punishments usually consist of fines, and reductions of rank and salary, and there is always maintained a steady attempt to weed out the undesirables. The highest salary paid a light-keeper is ₱960.00 per annum (Class A). His Civil Service status begins when he is promoted to a salary of more than ₱720.00. Rations are provided the personnel of isolated light-stations only.

ADVERTISEMENTS

A complete list of the lights, buoys, beacons and daymarks, giving all information useful to mariners of each aid, is published annually, on July 1st. Copies of these lists are furnished everyone interested in shipping commerce, and a special advertisement is placed on the cover of each list to the effect that a copy will be furnished free of charge to anyone making application therefor to the Lighthouse Inspector. Besides these lists, a regular "Notice to Mariners" is sent to all interested persons whenever any new aids or changes in existing aids are contemplated, and also after such changes have been made, giving the necessary information regarding each aid. These notices are also published in the daily newspapers in Manila.

The following is a statement showing by fiscal years what has been accomplished by the Lighthouse Service from the time of its organization in October, 1901 to February 29, 1908:

RESUME OF WORK ACCOMPLISHED:

	Fiscal years: 1902	1903	1904	1905	1906	1907	1908 (8 mos.)	Total
New lights established	11	21	26	15	10	11	9	103
Discontinued	0	0	1	1	3	2	0	7
Net increase	11	21	25	14	7	9	9	96
Lights in operation at time of organization of the Lighthouse Service								27
Total number of lights in operation February 29, 1908								123

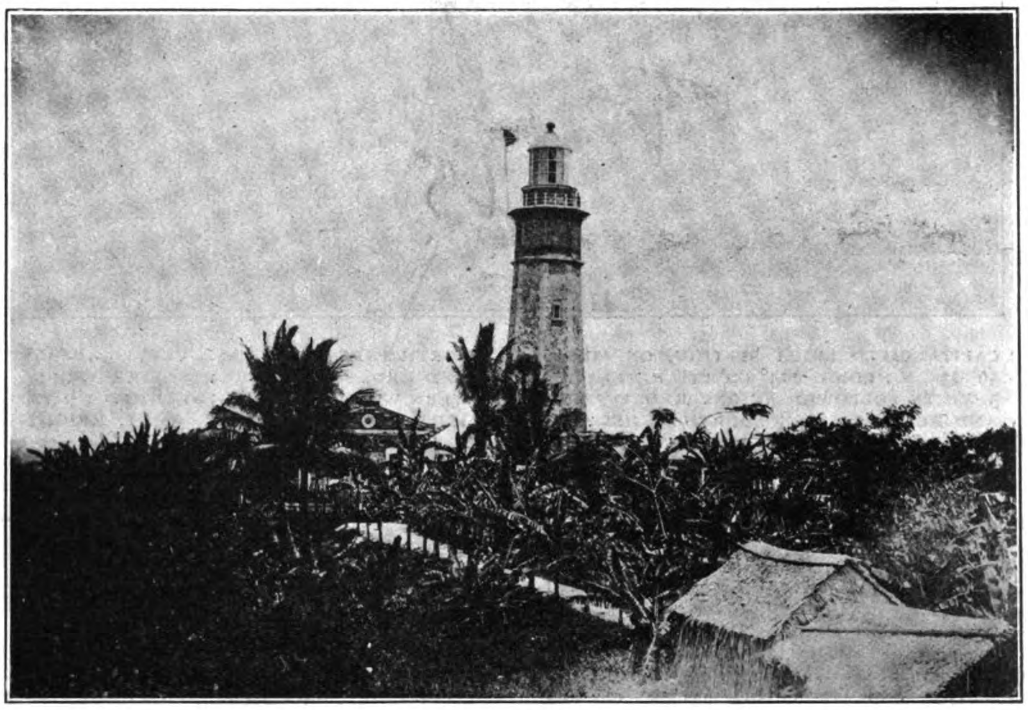
	Fiscal years: 1903	1904	1905	1906	1907	1908 (8 mos.)	Total
New buoys and unlighted beacons established	19	30	22	19	24	22	136
Discontinued	2	1	1	0	1	1	6
Net increase	17	29	21	19	23	21	180
In position at time of organization of the Lighthouse Service							31
Total number in position February 29, 1908							161

List of lights in operation February 29, 1908, classified.

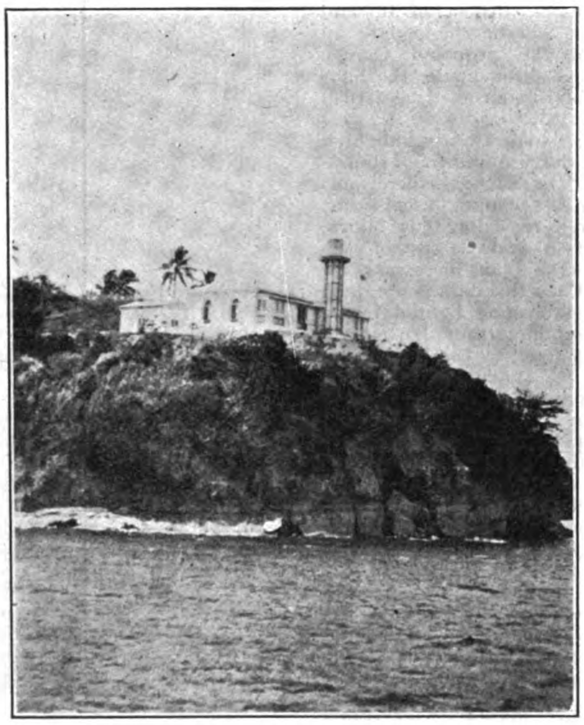
First-order, flashing	5
Second " "	1
Third " "	8
Fourth " "	7
Sixth " "	8
Sixth " fixed	2
Occulting lights	12
Sixth-order, port, fixed	28
Electric arc lights	2
Lens lanterns, fixed	50
Total	123

List of buoys and unlighted beacons in position February 29th, 1908, classified

First-class can buoys	5
" " nun "	5
Second " can "	32
" " nun "	33
" " cone "	1
" " spar "	4
Third " can "	18
" " nun "	13
" " cone "	4
" " spar "	5
Unlighted beacons	41
Total	161



CAPE MELVILLE LIGHT STATION, BALABAC ISLAND; LAT. 7° 49′ 25″ N., LONG. 117° 00′ 08″; FLASH. WHITE; SHOWS FLASH EVERY 20 SECS.; DURATION FLASH 5 SECS; FIRST ORDER; HEIGHT LIGHT ABOVE SEA LEVEL 296 FT. HEIGHT TOWER 90 FT.; VISIBLE 24 NAUT. MILES



LUSARAN LIGHT STATION, WESTERN EXTREMITY, GUIMARAS ISLAND; LAT. 10° 29′ 02″ N., LONG. 122° 28′ 07″ E.; FLASH. WHITE AND RED; GROUP 3 WHITE EVERY 15 SECS. FOLLOWED BY ONE RED; ABOVE SEA LEVEL, 111 FT.; HEIGHT TOWER, 38 FT.; VIS. 16 NAUT. MILES.

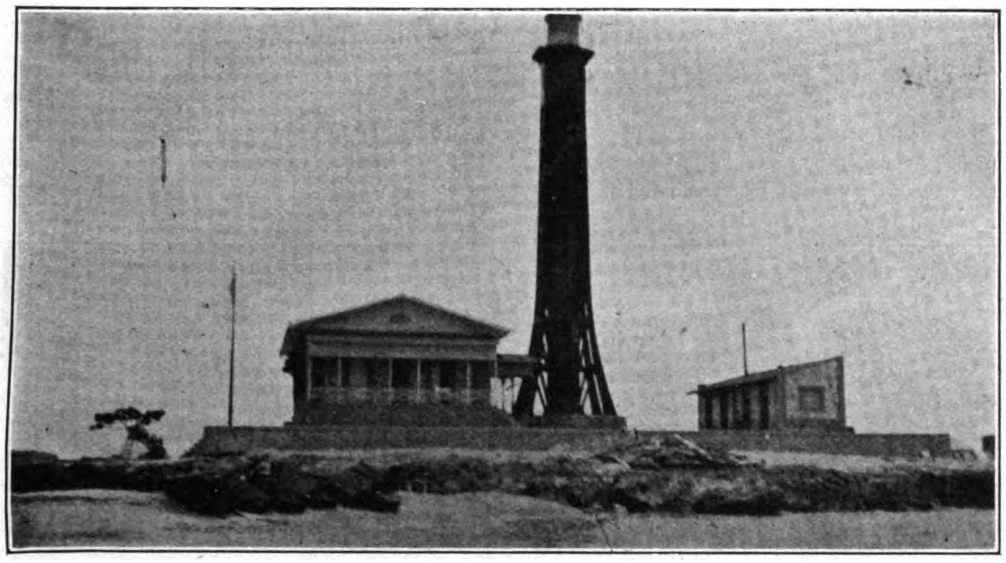
PLANS FOR THE FUTURE

The construction of a third-order flashing light on Sibago Island, south of Mindanao, of a fourth-order flashing light on Suluan Island, southeast of Samar, are contemplated; also the establishment of minor lights on La Monja (near northern entrance to Manila B y), Cobrador Island (north of Romblon), Isabel Island (east of Mindoro), Colorado Point (at entrance to Port Barrera, Masbate), Divinubu Island (near entrance to Borongon harbor, east coast of Samar), Punta Pata (north coast of Luzon), and at such other places as may be found necessary. The light on Pulo Cabalo (entrance to Manila Bay) will be moved to the highest point on the island, and the present fixed light changed to an occulting one. The light on Lauis Ledge (southern entrance to Cebu harbor) will be moved to the edge of the reef about 1200 yards southwest of it, and the present fixed light will be changed to an occulting one. When the proposed change in Lauis Ledge light has been made, the light on Lipata Bank will be discontinued, as it will not then be necessary.

It is proposed to erect some twenty unlighted beacons and place a large number of buoys in various points of the islands where aids are necessary, during the coming fiscal year. Data is being procured regarding gas buoys, their cost of construction, and the cost of purchase and operation of a plant necessary for their maintenance. When this data is obtained the advisability of establishing lighted buoys in several of the more important harbors of the islands will be considered by the Lighthouse Board.

Although the Island of Luzon, along the passage running from the Pacific Ocean to Manila—via the San Bernadino Straits—has been well lighted, so that when the Batag light is put in operation it will be possible for a vessel 25 miles out at sea to enter and pass through the straights and anchor in Manila Bay without ever being out of sight of a light, there still remains—in spite of this and in spite of the numerous lights that have been placed since American occupation—a large area to be covered, and the islands will not be considered well lighted until there are nearly double the number of lights that we have at present. The most important lights are being considered first, and these are placed where traffic is greatest. During the coming year it is expected that ten or fifteen lights will be built.

The greater part of the data contained in the above article has been collected by Mr. C. E. Piatt, chief clerk in the Lighthouse Service.



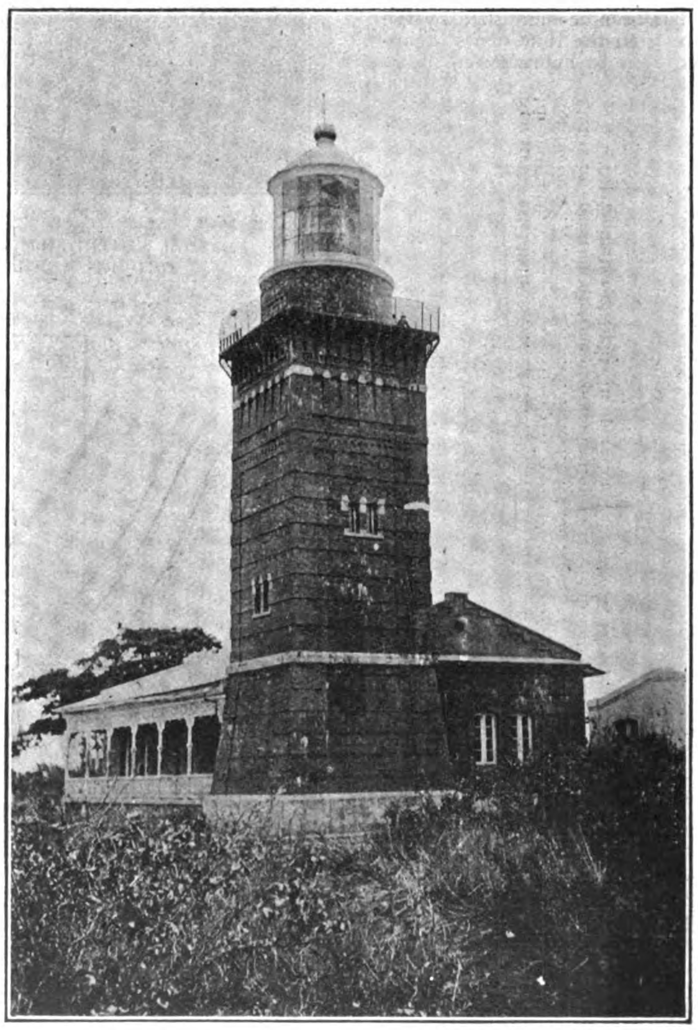
CAPITANCILLO LIGHT STATION, ON ISLAND OFF NORTH PART EAST COAST, CEBU; LAT. 10° 59′ 23″ N., LONG. 124° 06′ 01″ E.; FLASH WHITE AND RED, SHOWS EVERY 10 SECS. GROUP 3 WHITE FOLLOWED BY ONE RED, INTERVALS BETWEEN WHITE 1 2/3 SECS.; BETWEEN WHITE AND RED, 3.5 SECS.; FOURTH ORDER; HEIGHT LIGHT ABOVE SEA LEVEL, 98 FT. HEIGHT TOWER, 83 FT ; VIS. 16 NAUT. MILES.

FORMOSAN LIGHTHOUSE

The Formosa correspondent of *The Japan Chronicle* states that a lighthouse is being erected on an island called Hokasho, a little to the north of Keelung harbor. Formerly sailing ships could enter the harbor only in daytime, but when this lighthouse is completed, it is believed they will be able to enter at any time. The estimated cost is -Y-223,700. In the 39th year of Meiji (1906-7) -Y-32,000 were spent; in the 40th year -Y-130,000; and during this present year -Y-61,700. It is expected that by March of next year the work will be completed. Kerosene oil is to be burned in the lamps, which are to be of 700,000 candle-power. The light will be visible from a distance of 30 nautical miles. The lighthouse is, however, smaller than that on the south cape of Formosa.

HONGKONG DOCKS

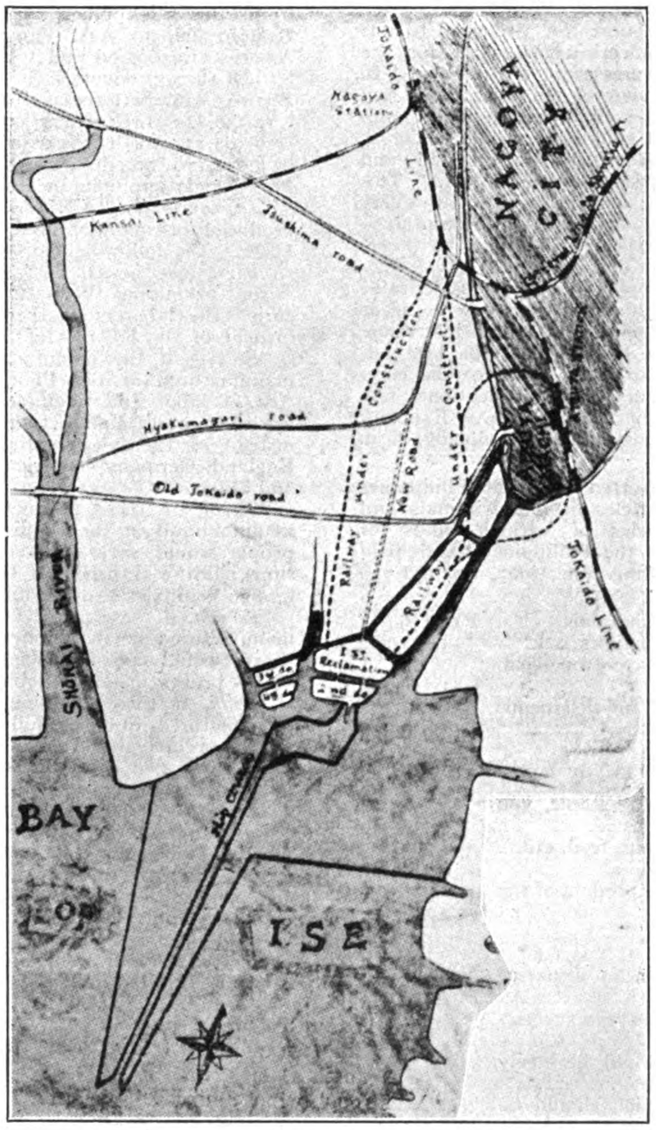
The new steel steam twin screw lighter constructed for the Norddeutscher Lloyd by the Hongkong and Whampoa Dock Co. was launched from the company's slipway April 4th and christened Chantaboon. This vessel is the sixth of her class built for the same company by the Hongkong and Whampoa Dock Co. She will be utilized for the Siamese River trade. The dimensions are 158 feet in length over all and 152 feet between perpendiculars; moulded breadth, 29 feet; moulded depth, 11 feet; and extreme draught, 9.3 feet. She is equipped with two sets of vertical triple expansion surface condensing engines, with a high pressure cylinder 8½ inches in diameter, intermediate pressure 13½ inches, and light pressures 23 inches in diameter, with a stroke of 15 inches. She has one cylindrical moulded steel boiler, return tubular, 11 feet in diameter and 10 feet long. Fox's patent furnaces, with a working pressure of 170 lbs. to the square inch.



CABRA LIGHT STATION, OFF WEST COAST LUZON, LAT. 13° 53′ 28″ N., LONG. 120° 01′ 07″. FLASH. WHITE SHOWS GROUP TWO FLASHES EVERY MINUTE, DURATION EACH FLASH, 8 SEC.; INTERVALS BETWEEN FLASHES, 7 SECS; INTERVALS BETWEEN GROUPS 37 SECS.; FIRST ORDER; HEIGHT LIGHT ABOVE SEA LEV., 216 FT.; HEIGHT TOWER, 67 FT; VIS. 21 NAUT. MILES.

NEW OPEN PORT OF NAGOYA

In November, the opening of the Port of Nagoya was celebrated by the inhabitants of Atsuta Prefecture, city of Nagoya. The port has a population of 300,000 and is one of the most active industrial centers in the mainland besides being an important junction of three lines of railway. It faces Atsuta Bay on the South and is situated in 35°7′—12′ N. Lat. and 136° 53′—57′ E. Long., about half way between Yokohama and Kobe, the two largest ports in Japan. It is the largest city on the high way of Tokaido, formerly being the castle town of Lord Tokugawa, one of the three chief branch families of the Tokugawa dynasty, and, since the Restoration of 1868, it has made a rapid progress.



NEW HARBOR OF NAGOYA, JAPAN

As for its communication the Tokaido railway line starting from Tokyo leads to Kyoto, Osaka, and Kobe through the city; the Kansai railway line starts from the city and leads to Yamada, Ise Province, and Osaka; while the line of the Central Railway Section also starts from the city to connect Kai and Shinano Provinces, the richest silk producing districts in the country and Tokyo in a few year. And upon the completion of the harbor construction, the port was opened for foreign trade as the port of Nagoya. the town of Atsuta close south of Nagoya proper being amalgamated with the city.

The construction of the port had been planned by Aichi Prefecture and the investigation was commenced on the 22nd May, 1896, with the estimated expenditure of ¥1,800,000 and after-total expenditure including the supplementary estimates reached nearly ¥2,800,000 and the port was actually opened on the 1st Oct., 1907.

The harbor work covers the space enclosed by the two long dykes, east and west, which the two long dykes, east and west, which being constructed with the object of protecting the harbor from turbulent waves and intruding sand and mud, extend as far as 1 mile south of the shore of Atsuta as shown in the sketch. The eastern dyke projects from the northern side of the mouth of the Amashiro river to the western direction with a length of 1482 *ken* of which 882 *ken* is built of stone and then turns southward extending 2026 *ken* farther. The western dyke begins at the eastern side of the mouth of the Shonai river and runs due south for a distance of 2397 *ken* of which 1285 *ken* is built of stone. The part enclosed by those two dykes forms the whole water area of 1,735,000 *tsubo* and is dredged as the permanent moorage.

In the front of No. 2 and No. 4 reclamations and at a distance of 100 *ken* from the shore an anchorage of oblong shape 550 *ken* long from east to west and about 200 *ken* wide with a water area of 120,000 *tsubo*, and both sides of the pier which projects from the centre of the 2nd reclamation and beyond 20 *ken* from the shore, adjoining to the anchorage, are dredged to a depth of 25 ft. below the average low water level, ordinary spring tides in order to provide for a moorage of comparatively large vessels. The ship course with a width of 20 *ken* leading from the entrance of the harbor to the anchorage is dredged to a depth of 20 feet below the average low water level, ordinary spring tides.

The space within the harbor is sheltered and the gentle tides and muddy bed afford a good moorage, but the limited anchorage with a depth of only 25 feet below the average low water level can accommodate only 6 vessels of about 2,000 tons.

A pier is constructed from the middle of the 2nd reclamation toward the anchorage and connected with Nagoya Proper by a broad straight road. It is built of iron pillars and double beams of iron and wood over which four railway lines are laid. It has a total length of 70 *ken* with a width of 7½ *ken* and a height of 13 feet above the low water level.

Wharves are provided at a distance of 75 *ken* on either side of the pier on the ground sloping gradually down toward the water and each of them has a width of 15 *ken*.

Canals 30 *ken* wide, between the 1st, 2nd, 3rd, and 4th reclamations, facilitate land and water communication and on the reclamations warehouses shall be built.

The construction works of connecting railway and electric tramway lines and a broad road and bridges connecting the city and the reclamations and the reconstruction of the Horikawa and Shojin rivers are all to be completed within the fiscal year of 1909.

The project of the construction of the harbor was first proposed in the Prefectural Council in 1894, and in February 1896 the Council passed the bill appropriating the sum of ¥1,897,388 for the work to be disbursed in seven succeeding years. Though the harbor work was once suspended owing to an extra-ordinary tempest and flood, land works were undertaken from 1903 for which the sum of ¥485,661 was appropriated to be disbursed in three years from the fiscal year of 1904, and then the supplementary sum of ¥403,760 was appropriated to be disbursed during the fiscal year's from 1907 to 9. Thus the grand total of the estimated expenditure has amounted to ¥2,786,809 and the work was prolonged to cover 14 years from 1896 to 1909.

INDUSTRIAL EDUCATION FOR ORIENTAL PEOPLES

Europe has been watching with a great deal of interest the extravagant educational program of America in the Philippines and not only Europeans but many Americans have doubt as to the outcome of the experiment—for an experiment it is. Without questioning the motive of the American administration, there have been doubts expressed by many directly interested in this work as to the real value received for the four million pesos spent annually in the Philippines. In this connection, THE FAR EASTERN REVIEW is in receipt of a copy of a letter written by a prominent educator in one of the Philippine provinces, in reply to a communication received by him in which the expenditure of vast sums of money in the Philippines for educational purposes along theoretical lines was condemned. This reply goes so directly to the root of the matter that it should be read with interest by all who desire the wise and conservative development of oriental peoples by means of practical, industrial education of a character that emphasizes the dignity of labor economically directed. The letter in part follows:

"The question of less money being spent on Education is in my opinion a serious one; a question not to be decided without the most careful consideration and *investigation*. What do these people need more than Education? It seems to me that there is but one answer to this question. The whole trouble or difficulty is with the *kind of education* they have been getting for the last seven years; and the dissatisfaction is with the *results*, the *product of the schools*. Am I not right? In my judgment to propose such a proposition is to dodge the real problem before us as a people responsible for the education of another people. Don't evade the real issue; let us make a stronger stand

for the education we owe this people and are in duty bound to give them.

"If the schools could not be immediately productive of industry as well as of intelligence, and of economically valuable citizens as easily as clerks I would agree with you without hesitation; but I believe that they can be and I want to show you, for example, how this can be done from the program proposed in the papers which I have already placed in your hands. Take the sheet on rice; rice raising is the principal industry of this province. Rice Report No. 1 kept the teachers and pupils in this province busy for nearly two months learning the kinds of rice raised, the time for planting each kind, the kind of soil in which each kind grows best, the amount of water each kind needs; the average number of stalks and heads each kind produces in a square meter, the average number of grains to a head each kind produces, the size of the grain or kernel, the color and the character of the kernel, the characteristics of the rice that brings the highest price and is in greatest demand. In these investigations I have raised the questions of the kinds of rice, the kinds of soil, irrigation, what kind of rice is the best producer and what qualities go to make the kind in greatest demand—fundamental questions which every one knows, who knows anything about farming, determine in a larger measure successful rice raising.

"One town alone reports fifty kinds of rice raised; almost every town reports clay or loamy soil as best adapted to rice raising; almost every kind of rice-requires much water; two varieties 'Makan' and 'Binatad' seem to produce the largest yield per hectare; in the 'Mimis' seems to bring the highest price. There is little or no doubt that the mass of farmers, particularly the small farmers, should be encouraged to raise only three or four of the best kinds of rice instead of the great number of varieties they do now; the question of irrigation is a very important one for discussion, many of the farmers could have saved their crops this year if they had tried, but had never tried, and they didn't know how.

"Let me tell you that there is not a textbook in use in these islands or in the United States, to my knowledge, that is built up on the idea of helping the 'kiddy' to earn his daily bread but on the contrary it is based on logically preparing the youngster for a larger knowledge of the subject,—for promotion to the higher grade, to the high school, the college and the university. Examine our latest books, Coulter's Nature Study Reader, Ritchie's Lives of Plants and Copeland's new book on Agriculture, and tell me if this is not clearly true.

"What can the schools do, more than to investigate rice raising? Tobacco raising, sugar raising, or hemp raising? My program for next year will call their attention by experiments to the importance of selecting and how to select seed; how to test seed to determine whether it should be planted; how to determine how deep seed should be planted; how to determine how much sun and rain the seed demands; how fast it grows, how long it takes to come up, to blossom, to produce grains or mature, how long the grains should cure; what plant foods the rice plant requires from the soil. Do you think these experiments will not be interesting? Do you think that at the end of the year the teachers and the boys and girls won't know more about the rice plant and what it demands for its successful growth than they do now? Do you think they won't be more interested in farms and farming than they are now? Psychologically and Pedagogically I believe it is just as easy to interest boys and girls in farming and trades as it is in the office and the shop; all you have to do is to turn your guns that way. It isn't intelligent farming that our boys and girls shirk or fly from, it is slavery and the drudgery of ignorant and unintelligent farming. The farm is near to nature's heart and when you light it up it is unlimited in the field it presents for the study of the eye and the mind while the office and the shop are mightily limited. In general the plan or procedure outlined above could be carried out in the study of any agricultural plant.

"Now for a moment let us consider the manufacturing side which is brought out in 'Industrial Report No. III;' the principal industries reported are the making of cloth, mats and hats, of shoes, and pottery, some furniture, carts and carromatas. Do you think it possible that we cannot in the Primary Schools give the children some training with their hands that will make them more alert in weaving cloth, mats, or hats? Do you think we cannot give them some new ideas or make them quicker and better with shoemakers' tools, or the tools for making the cart or carromata? Do you think we cannot turn them to these trades and make them economically more valuable citizens?

"I do not contend for less English or reading or writing or geography or arithmetic, but I do contend for this training and experience as the meat or subject matter of the course and the birthright of every boy and girl in these islands. What do you think would be the result in a few years if the school guns were turned in this direction? Do you advocate less money for schools? I do not."

The Industrial Report No. 3 referred to was issued by this enterprising educator for the purpose as he expresses in the circular, "To give you a larger view of the commercial and industrial status of your own country as compared with what it could and should be, or as compared with the foremost civilized and commercial countries of the world." This interesting circular, which was sent to every school in the district, the knowledge it contained made available to the pupils and given precedence in the form of discussion over mythology and ancient history, etc., brings desirable results. It brings home to the pupil the needs of the country and points out to him just where his energy may be exercised to the best advantage not only to himself but to the community. This circular as an educational feature, is quite original and the FAR EASTERN REVIEW takes pleasure in reproducing it in part as follows:

"There are imported into the Philippines crude products, articles of food, animals and manufactured articles of various kinds for which the people of the Philippine Islands paid during the year ending June, 1907, ₱57,571,710 as follows:

For articles of food animals	₱18,116,894
For manufactured articles	34,552,262
For crude products, cotton, coal, iron, lead	1,759,156
For luxuries and miscellaneous articles	3,145,398

THINGS YOU EAT

For rice, a Philippine staple, you pay other countries	₱7,324,986
For bread stuffs, flour, feed, etc.	2,305,140
For milk	634,408
For sugar, a natural product of the islands	216,780
For cheese	83,060
For butter	189,316
For cocoa, with cacao a native product	422,354
For coffee, which has been successfully raised	251,998
For eggs, which could be easily produced at home	520,922
For fresh beef, which should be raised here	485,388
For fresh pork, which should be raised here	64,480
For hog products, which should be produced here	702,566

"Cannot these products be raised or made in the Philippines? If they were then the people of the Philippine Islands would be ₱13,201,398 richer.

THINGS YOU WEAR

For raw cotton and clothing made of cotton you pay other countries	₱16,001,894
For raw wool and clothing made of wool	176,278
For leather used in making harness boots, shoes, etc.	824,332
For hats and caps	174,528

"If these articles were produced or manufactured at home the people of the Philippine Islands would be ₱17,177,032 richer.

THINGS YOU USE

For tobacco, a Philippine staple, you pay other countries	59,466
For vegetable fibers and textile grasses	1,110,810
For oil used for medicinal, lighting, or lubricating purposes	1,788,588
For paper used in making books, magazines, newspapers, writing paper, and wrapping paper	1,017,508
For wood and manufactures of wood	837,940
For furniture, with the finest cabinet woods in the forests	80,624
For crude iron and machinery, hardware, tools, cutlery, etc., made of iron and steel	4,729,110

"If these products were mined and manufactured at home the people of the Philippine Islands would be ₱9,624,046 richer.

"For the articles named above there is sent from the Philippines annually to Europe ₱24,607,866, to Asia ₱19,375,388, to North America 10,360,466 and to Oceanica 3,224,276

Of these products,

₱31,947,846 worth are carried by British Vessels,
12,350,840 worth are carried by Spanish Vessels
6,308,134 worth are carried by German Vessels
3,211,170 worth are carried by American Vessels and none by Filipino Vessels.

"*In conclusion*, if these articles were all, produced or manufactured in the Philippine Islands, the following facts are quite clear:—

"*First*, the actual cost of the expense of raising or mining the natural products would enrich the laborers of the Philippine Islands instead of the laborers of foreign countries.

"*Second*, if the manufactured articles were manufactured in the Philippine Islands, the cost of labor and manufacture would enrich the laborers and manufacturers of the Philippines instead of the laborers and manufacturers of England, Germany, America, Australia, Japan and China.

"*Third*, if these products were raised and manufactured in the Philippines, the Filipino people would save for themselves the large sums paid for transporting these products from foreign countries to the Philippines.

"*Fourth*, if these products were produced or manufactured in the Philippines, the Filipino people would save for themselves a large part of the profits made by jobbers or middlemen.

"*Fifth*, if these products were raised and manufactured in the Philippine Islands, the Filipino people would save for themselves the large sums of money paid as duties of customs for bringing these products into this country.

"If the above facts indicate to you that there is opportunity in the Philippines for agricultural pursuits, for mining, for manufacturing enterprises,—that the present industrial and commercial conditions can and should be changed,—tell your pupils, neighbors, friends, and all of the Pilipino people about it; use your head and tongue and hands to help transform your native land into a land of peace and plenty."

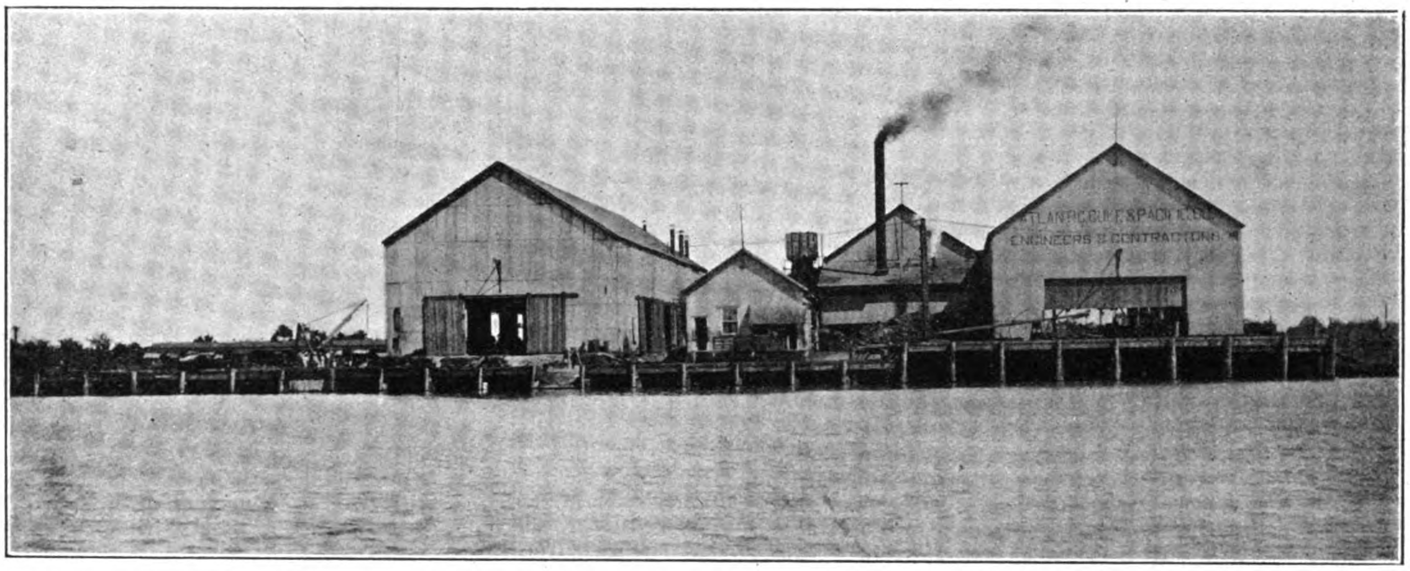
THE CHINESE NAVY

Recently the question of the reorganization of the Chinese Navy was discussed by the Ministry of War and it was stated, says the *N. C. D. News*, that the sum of Tls. 10,000,000 should be jointly provided by the Ministries of War and of Finance for the purpose of purchasing battleships from foreign countries and of establishing naval bases, and that the annual expenses for upkeep should be equally defrayed by the provincial governments. It is reported that the new Navy will be divided into three sections, viz., the Peiyang, Nanyang and Yuehyang (Canton) Fleets. Each fleet will be composed of one large battleship, fifteen large and smaller cruisers, a number of torpedo-boats, dispatch-boats, gunboats and submarines and will be commanded by an admiral. Yulingkong, in Kuangtung, and Sanmun Bay will be the bases for the Yuehyang Fleet; Chusan and Nimrod Sound for the Nanyang Fleet, and Chefoo and Taku for the Peiyang Fleet. An Admiralty will be established after naval regulations have been drawn up by the Department for the Compilation of Constitutional Laws.

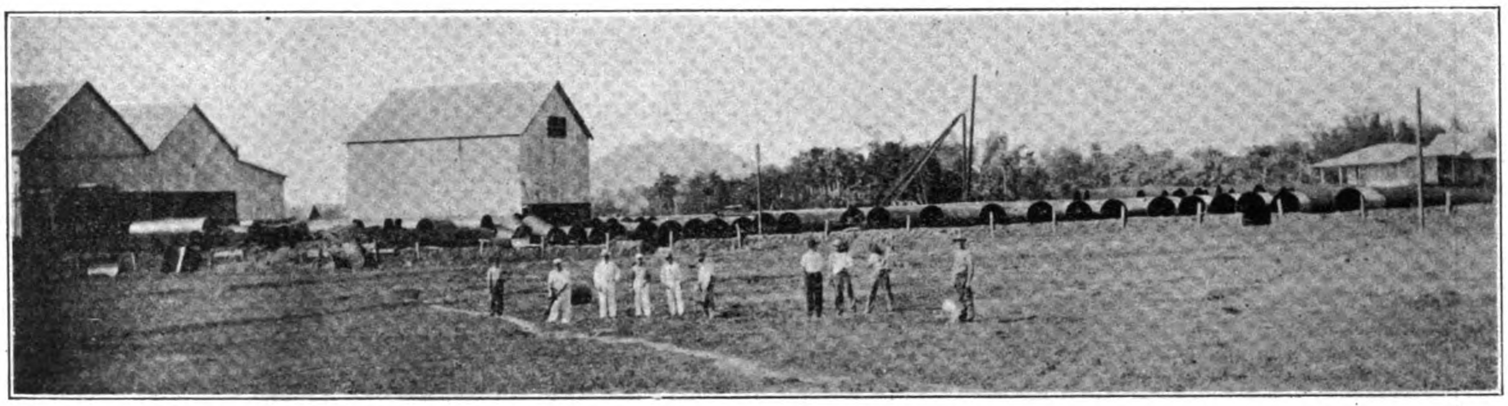
THE ATLANTIC, GULF AND PACIFIC CO.'S STRUCTURAL STEEL SHOPS

With the completion of the contract to supply over eleven miles of 42 inch pipe for the water supply system being installed for Manila; the completion of the new steel railway bridge over the Pasig for the Manila Railway Co. and the manufacture of large cylinders used in dock construction at the new port, attention is directed to the extensive works of the Atlantic Gulf and Pacific Co. in Manila, where all the material used was fabricated. These shops are the only institution of the kind in the archipelago and all the labor used is Filipino, directly under American supervision.

In 1906, the Atlantic, Gulf & Pacific Co. purchased 25,000 square meters of land at the junction of the San Juan and Pasig Rivers and, after raising the elevation of the property 4 feet above adjacent land, thus bringing it at all times above any danger from flood, erected the substantial buildings referred to in the illustrations accompanying this article, and which have a floor space of 30,000 square feet. These shop-buildings have been completely equipped with heavy machinery and tools of the most modern and improved type, with a view to the manufacture of steel structures of every description, multiple punches, rotary bevel shears, edge planers, power bending rolls, air riveters, lathes, planers, shapers drill presses, cold saws, etc. Compressed air is pumped to all points, and all riveting, reaming and caulking is done with air tools. This is the only shop in the Philippine Islands similarly equipped.



FRONT VIEW OF THE ATLANTIC, GULF AND PACIFIC CO.'S STRUCTURAL STEEL SHOPS IN MANILA ON THE BANK OF THE PASIG



VIEW OF THE ATLANTIC, GULF AND PACIFIC CO.'S STRUCTURAL STEEL SHOPS

In addition to the machines enumerated above, which are used in connection with the manufacture of plate and bridge work, the company has a complete equipment for the manufacture of all classes of machine bolts and nuts, track bolts, railroad spikes and washers of all descriptions, and is at the present time supplying the Philippines government with everything it needs in this line.

One of the most important contracts turned out by these works was the manufacture of 11 miles of 42 inch water pipe which is to carry the new water supply for the city of Manila from the dam constructed across the Mariquina River at the gorge, down through the San Mateo valley, connecting with the 24,000 feet of tunnel driven by this company. All this piping was punched, sheared, rolled, riveted, caulked and dipped in these shops.

Another important order was the fabrication of the large cylinders for the new docks which are being erected in Manila Bay by the Atlantic Gulf and Pacific Co. These cylinders are 6 feet 6 inches in diameter by 47 feet in length and taper for about one-third of their length, giving them the appearance at a distance of heavy ordnance. These could be seen at the site of the new docks and the unitiniated, in passing down Malecon Drive, were not sure that Uncle Sam did not intend using them for fortifications. These cylinders are placed around piles which have been driven 30 feet below water, and are then filled with concrete and serve as a foundation for the steel superstructure which surmounts them. They weigh about seven tons each.

It has been a great advantage to the insular and municipal governments to have these steel cylinders and water pipe fabricated in the Philippines. In the case of the cylinders, the excessive freight rates on cylinders fabricated abroad would have made the price practically prohibitive. Under present conditions, with the work being done in Manila, by the inhabitants of the islands, the most important and desirable result is the training and schooling that the Filipinos are receiving in doing this class of work while the money which would otherwise be spent abroad for the product is now kept in the archipelago, an inspiration to the inhabitants to encourage home industries.

In regard to the value of the Filipino as a laborer and mechanic, the management is satisfied that the work turned out by the native artisan, properly trained and under competent supervision, is equal to any similar work manufactured abroad. This is given particular emphasize since these works were the first of their kind in the islands and the only labor available was that developed by the system inaugurated by the management and from raw material.

The double-track railroad bridge just completed across the Pasig River at Pandacan by the Atlantic, Gulf and Pacific Co. for the Manila Railway Co. was designed by the engineers of the contracting company, fabricated in the

company's shops and erected by the company in its entirety, including the foundations. This bridge, a photograph of which is reproduced, is 450 feet over all and comprises two spans of 70 feet each and two spans of 80 feet each with a swinging span of 150 feet. Both piers and abutments are built or concrete and rest on bed rock 20 feet below water level. The total weight of steel in this bridge is 400 tons.

Another important feature of the work of these shops is the construction of steel tanks. Two substantial tanks, complete in the matter of design, construction and erection, were installed by the company for the U. S. Quartermaster's Department at Fort McKinley, recently. These tanks are of difficult construction, having hemispherical bottoms, built on 75 feet towers, each having a capacity of 100, 000 gallons.

The company has now in process of fabrication, large orders of structural steel which will be diverted in the shape of highway bridges to every province in the islands. The present capacity of the plant is about 800 tons of fabricated steel a month and this will be increased from time to time to meet the demand.

The encouragement of permanent enterprises of this character involving large investment of capital, employment of a large number of trained industrials, and the establishment of complementary industries, is a matter that should engage the attention of the progressive inhabitants of the archipelago as well as the Philippine administration and with special reference to the latter in carrying out its established policy.

OBITUARY

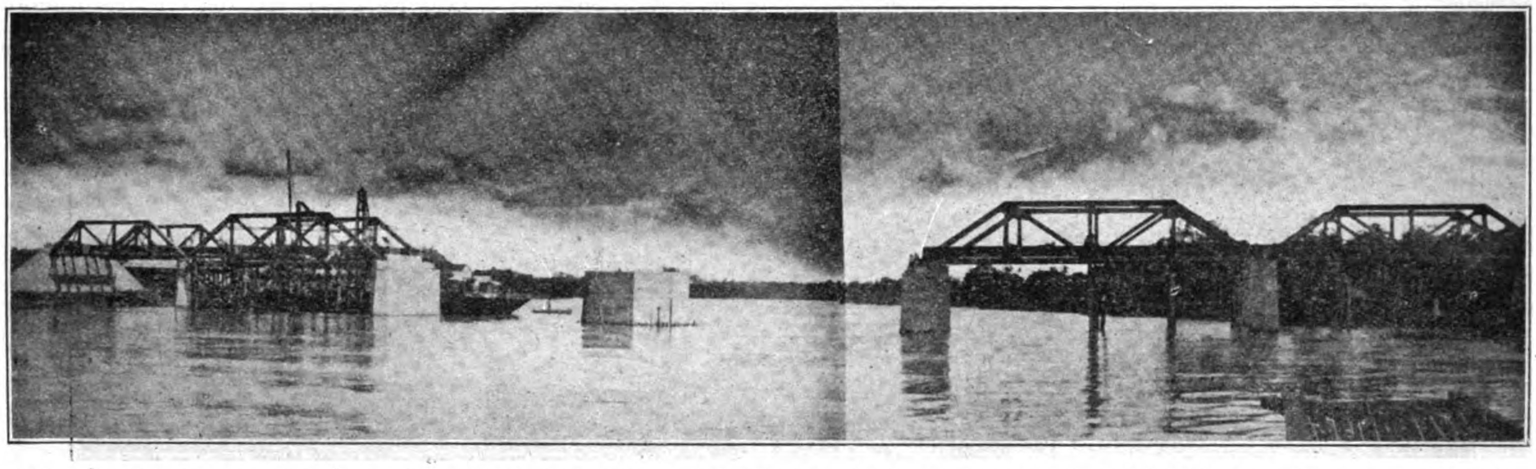
Hongkong was shocked by the untimely death of Mr. A. H. Rennie, manager of the Junk Bay Flour Mills, who jumped into the harbor on April 14th, while temporary insane. It is believed that business worries were responsible for the sad tragedy. The deceased was one of the most respected and enterprising businessmen of Hongkong.

He was a native of Canada, born in 1857. He was a graduate of Hamilton Grammar School and Upper Canada College, Toronto, Ont., and after graduation served as private secretary to Premier Norquay of Manitoba, and during his service in that capacity, which was concluded in 1889, he was delegated to negotiate a loan for that province in England. In 1890 he proceeded to Hongkong where he served the government consecutively in the positions of correspondence clerk in the public works department, acting assistant harbor master and acting superintendent of water police, and secretary of the sanitary board. In 1893 he accepted the position of representative for the Portland Flour Mills and Puget Sound Milling Co. and retired from the service later to look after these interests. Subsequently he interested Sir Paul Chater and Mr. H. N. Mody in the establishment of the Junk Bay Mills and according to the annual report recently submitted, the prospects for the company were all that could be expected. It is understood that fluctuations in the market involved the company in some large losses recently and since the passing of the deceased a receiver has been appointed.

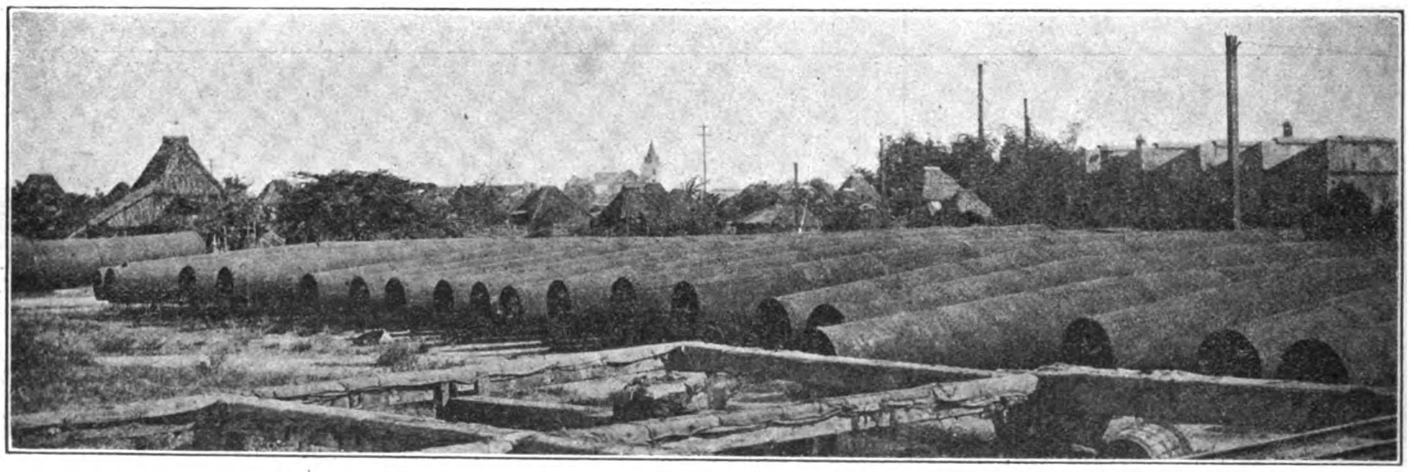
OPENING OF THE SHANGHAI-NANKING RAILWAY

The first passenger train to pass over the Shanghai-Nanking Railway made the distance between the two points at an average speed of 35 miles an hour or 193 miles in five hours, thirty-seven minutes. The highest speed made during the trip was 57 miles an hour. This trip was made on March 28th and the road was declared open to traffic in April. The occasion was celebrated by an excursion over the line and the following guests participated in the epoch making event:

Sir Pelham Warren, K.C.M.G., H. M. Consul-General at Shanghai, and Sir Alexander Hosie, Commercial Attaché of the British Legation at Peking, together with Messrs. P. Alderton, S. Barton, E. F. Bateman, H. T. M. Bell, F. S. A. Bourne, W. Bullard, W. A. Carlson, E. W. Clements, N. E. Cornish, P. V. Davies, D. C. Dick, Dr. J. C. Ferguson, O. M. Green, J. W. Gresson, T. H. Harris, W. F. Inglis, F. C. Macdonald, A. M. Marshall, R. B. Mauchan, A. Michie, H. Morriss, E. Morriss, Comte d'Audiffret Pasquier, C. D. Pearson, Comte de la Rochefoucauld, A. Rose, R. W. Shaw, Leo Smith, T. Weir, W. Whittall and W. R. Wright. At Soochow the train was joined by Messrs. A. W. Cross, Customs Commissioner, and G. F. H. Acheson, while at Chinkiang the following passengers boarded the train:—Mr. G. D. Pitzipios, H. M. Consul, Mr. F. E.



VIEW OF THE MANILA RAILWAY CO.'S DOUBLE TRACK R. R. BRIDGE ACROSS THE PASIG IN COURSE OF ERECTION—FABRICATED IN THE STRUCTURAL STEEL SHOPS OF THE ATLANTIC, GULF AND PACIFIC CO.



STEEL CYLINDERS FOR NEW WHARVES 6' 6" IN DIAMETER AND 47' IN LENGTH, FABRICATED AT THE STRUCTURAL STEEL SHOPS ATLANTIC, GULF AND PACIFIC CO.

Taylor, Customs Commissioner, the Revs. Père Chevalier, E. Paxton, and R. Walker, Capt. Noble, R. N., and the officers of H. M. S. Britomart, the Captain and officers of H. M. S. Snipe, Drs. Shackleton, Urbanek, and J. R. Wilkinson, Messrs. J. D. Danby, R. Kähs, E. Starkey, W. A. Washbrook, Wun Taotai, Chen Taotai, and Yung Taotai, General Chun, Wong Taotai, Mr. Kwan, Deputy, and Mr. Iswong. At Chinkiang H. E. Na Ching, Deputy Vice-Minister of the Ministry of Communications, came on board and took tiffin with the Railway Commissioners who included Mr. C. F. Anton, Chairman of the Board of Commissioners, Mr. J. D. Smart, Taotai S. T. Sze and Taotai Wong Kokshan, Commissioners, Mr. E. Morriss, Secretary. The expedition was in the charge of Mr. A. H. Collinson, M.I.C.E., Engineer-in-Chief, Mr. A. W. U. Pope, C.I.E., Traffic Manager, Mr. H. P. Winslow, Assistant Traffic Manager, Mr. J. G. Barkley, Executive Engineer at Chinkiang, Mr. A. C. Clear, Executive Engineer at Soochow, and Messrs. G. B. Johnston, S. Leslie, and N. R. Sinclair, Assistant Engineer, Mr. E. J. Dunstan, M.I.M.E., Locomotive Superintendent, and Mr. A. T. Holt, Locomotive Inspector.

Tiffin was served on the train after leaving Chinkiang and a warm reception was given the visitors at Nanking where several toasts were drunk and speeches made by Sir Pelham Warren, H. E. Taotai Wang Kok Shan, Commissioner J. D. Smart, Dr. J. C. Ferguson, Sir Alexander Hosie, Mr. C. E. Anton, chairman of the board of commissioners, and Mr. A. H. Collinson, engineer-in-chief. The last speaker announced that while the road was under construction and only half the mileage available over three million passengers had been carried which indicated that the facilities for traveling were appreciated and he believed the road was not only up to the standard but would prove a very profitable investment.

The following is a table of the distances travelled:—

	Miles
Shanghai	—
Soochow	53 47
Wusieh	79.80
Changchow	103 94
Tangyang	131.77
Chinkiang	150.33
Nanking	193.02

NATIONALIZATION OF RAILWAYS IN JAPAN

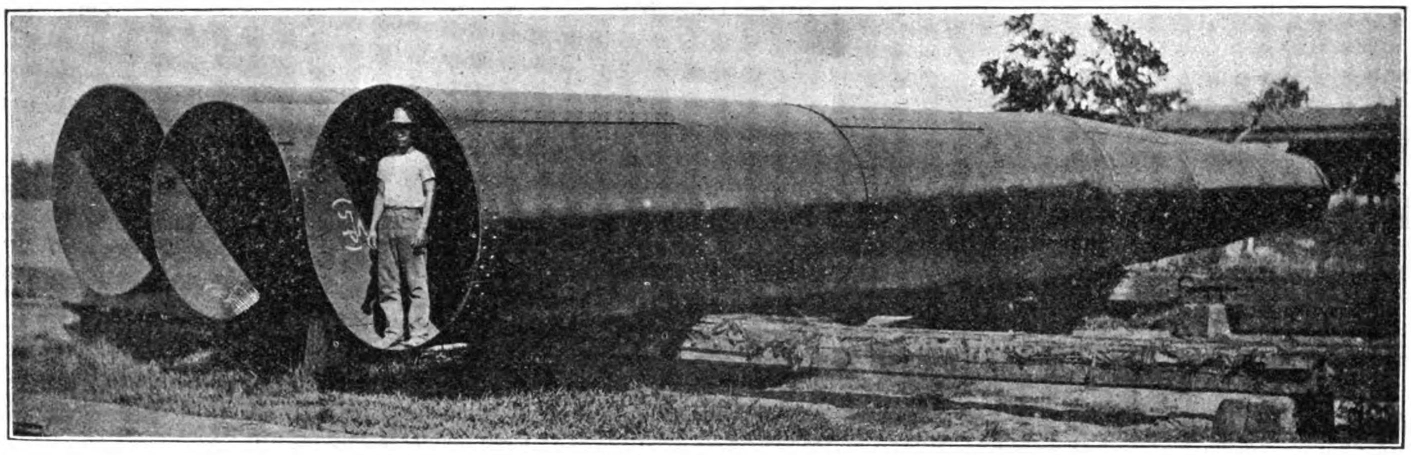
There is no more interesting question in the field of Japan's domestic politics than that of her nationalized railways," says the *Japan Mail* in reviewing the White Book just published by the Japanese Government on the progress made in this direction. "If public opinion be trustworthy," that paper continues, "the experiment of nationalization has proved a failure and the political parties of the Diet show almost unprecedented unanimity in calling for a radical modification of the existing system.

"On the other hand, every onlooker must have noticed that the charges preferred by the malcontents are vague, and every impartial person must recognise that the interval which has elapsed since the lines passed under official management has been too short to warrant any hard-and-fast deduction. What we want to hear before passing final judgment is the official version of the story, and happily that is furnished by a White Book just published under the name of *Tetsudo Kokuyu-go no Shisetsu narabi ni Seiseki.* This is a tolerably bulky volume containing many tables, but we can condense it so as to give to our readers a sufficiently clear precis of the information contained without inflicting wearisome details.

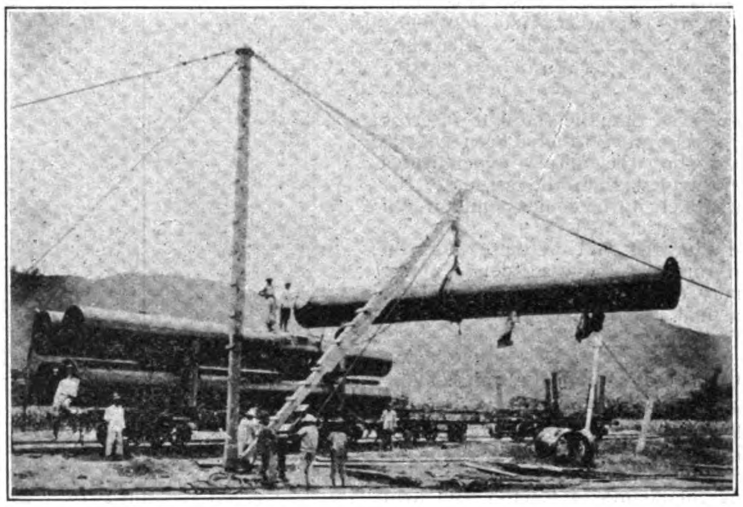
"Immediately on the promulgation of the Nationalization Law effect was given to its provisions, and between October, 1906, and December of the same year six private roads were taken over, namely, the Tanko, the Kobu, the Nippon, the Ganyetsu, the Sanyo and the Nishinari. In April of the following year (1907) steps were taken for introducing homogeneity into the administration of these lines, and for that purpose a central railway bureau was established, with administrating offices in 13 provincial localities and a managing bureau in Hokkaido. Then between July and October of the same year (1907) eleven more private roads were added, and there resulted a system of lines with a total, length of 4,500 miles, a total capital of 600 million *yen* and a staff of 80,000 employees. Another bureau of management was now established in Kyushu and the administrating offices were increased by two, the whole system thus consisting of one central bureau, two managing bureaus and 15 local administrating offices. It will be observed that all this was not completed until last October, so that the full organization has been at work for four months only. Nevertheless the Authorities claim that the results thus far have been highly satisfactory, and they adduce the following facts in support of their general contention.

"In the first place, taking the period from April 1st, 1907, to December 31st of the same year, the quantity of goods carried was 344,092 tons greater than the quantity for the corresponding period of 1906, and the gross earnings from the traffic showed an increase of 920,162 *yen.* In considering these figures it is necessary to remember that a serious interruption was caused by the inundation of last autumn and by he great military maneuvres. Another point to be noted is that a marked reduction was effected in rates of freight, and that a sliding scale was introduced so as to cheapen charges in proportion to distance. This was rendered possible by the economies and facilities resulting from the unification of a number of roads which had hitherto been operated independently, and to the same cause is attributed the fact that greatly increased celerity was attained in transport business. There was also a marked increase in the number of passengers, so that the daily income from each seat grew from 60.1 *sen* in 1906 to 65.7 *sen* in 1907, and this although a very marked cheapening of charges had taken place, the first class ticket from Awomori to Nagasaki being reduced from 34.23 *yen* to 26.38, the second-class from 25.35 to 15.86, and the third class from 19.78 to 10.51.

"In the second place, direct connexions were established with the following S.S. companies and over-sea railways, namely, the Osaka



CLOSER VIEW OF THE STEEL CYLINDERS FABRICATED AT THE ATLANTIC, GULF AND PACIFIC CO.'S STRUCTURAL STEEL SHOPS



ATLANTIC, GULF & PACIFIC CO. UNLOADING 42" STEEL PIPE AT MONTALBON FOR THE PIPE LINE

Shosen Kaisha's line to Tairen, the railways in Korea and the Osaka Shosen Kaisha's line to Formosa. It is further in contemplation to establish connexions with the South Manchuria Railway, the East China Railway via Tsuruga and the Chinese Railways. The Bureau's report alleges that strenuous efforts have been made to increase the comfort of guests; that agreements have been concluded with Messrs. T. COOK & Company and with the Society *Wagons-lit,* and that relations have been effected with all the principal hotels throughout the country with a view to giving greater facilities to foreign tourists. Of course there has not yet been time to witness the results of these various arrangements.

"Turning to telegraphs and telegrams, we find that the total length of lines in operation when the roads were taken over was 22,303 miles; that it has been increased to 22,740 miles; that 3,873 miles will be added during the current year and that 5,483 miles are projected.

"There has of course been much to do in reducing the rolling stock to something like uniformity. but the report necessarily fails to give any clear indications of the progress effected in that direction.

Finally we have the financial side of the question set forth as follows:

Official Estimate of the Working of all the Nationalized Lines during the Year commenced April 1st, 1907, and ending March 31st, 1908:—

	Yen.
Gross Revenue	71,066,470
Expenditures	40,586,972
Net Profit	30,479,498

Actual Results of 3 months' working from April 1st, 1907, to December 31st, 1907:—

Gross Earnings	52,864,867
Expenditures	24,830,014
Net Profit	28,034,852

It will be observed that the estimate of gross profits will probably prove to have been a little over the mark, but the actual expenditures being considerably less than the estimate, the net profits are likely to be some 5 million *yen* more than was anticipated.

It must be admitted that all these facts do not go to confirm the pessimistic views expressed in so many quarter. One is led to think rather that a final judgment is premature."

CHEFOO HARBOR IMPROVEMENT

The prospect for the early construction of a greatly needed breakwater for Chefoo harbor is growing brighter.

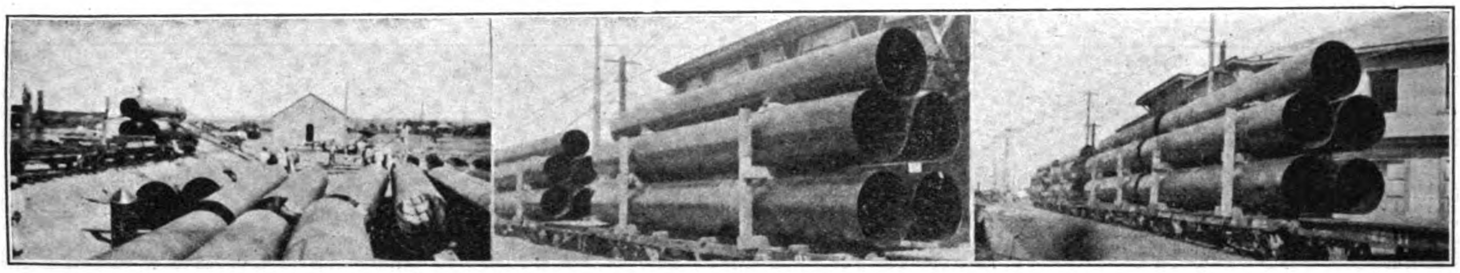
The *P. & T. Times* announces that a meeting of the leading merchants of Chefoo was held early last month and after some discussion it was decided that the necessary improvements would cost about 2,000,000 dollars and half the amount was immediately subscribed by those present. It was decided to proceed with the work at once and raise the balance necessary later on. It is also proposed to levy a tax on steamers to meet part of the deficiency.

PROPOSED CHEFOO-WEIH HSIEN RAILWAY

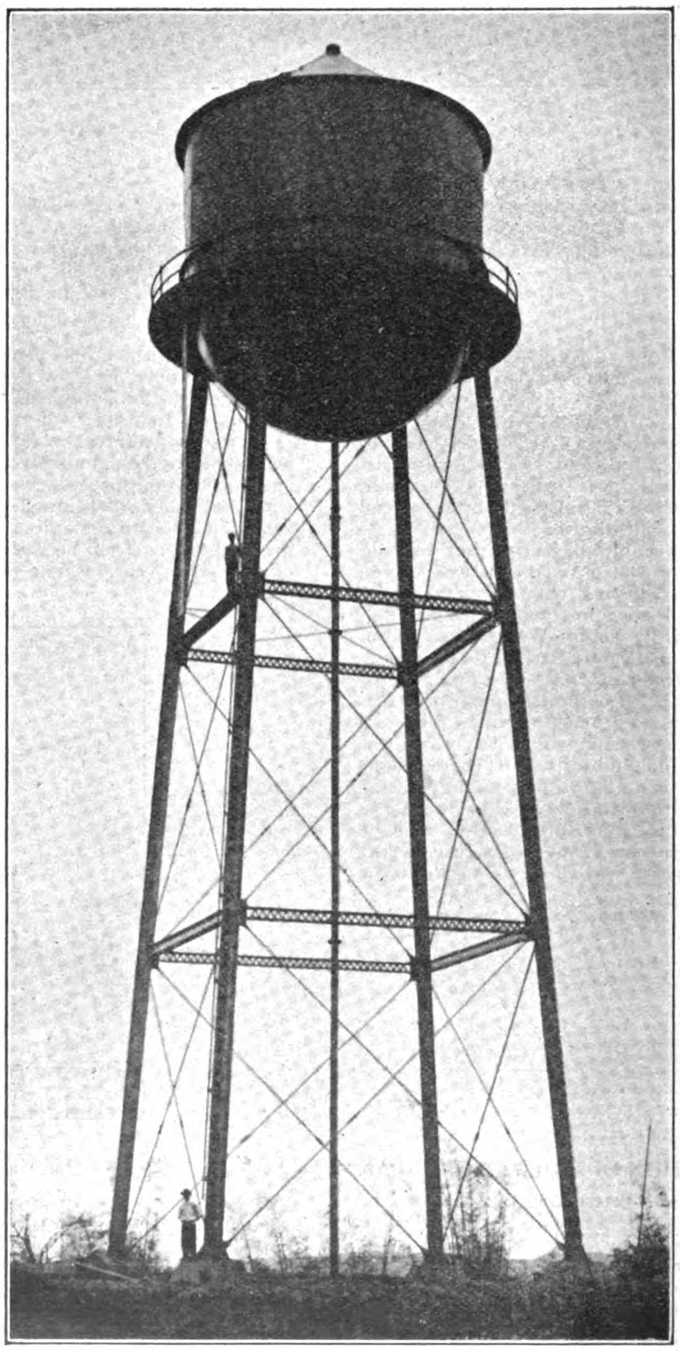
According to the correspondent of the *P. & T. Times* at a recent meeting of the leading native merchants at Chefoo it was decided to send out circulars inviting subscriptions to an issue of debentures amounting to $2,000,000, that is 400,000 debentures of $5 each, payable in instalments of 20, 30, and 50 per cent, the last instalment to be completed before the end of 1910.

This sum of two million dollars is to cover the initial cost of the line only. The total cost of the line to Weih-Hsien is estimated at $10,000,000. The merchants will invite further subscriptions when necessary, later on. Foreigners will not be allowed to purchase debentures from the native holders.

The farmers and other owners who will have to be expropriated of their lands for the construction of the proposed route will be paid for their property in debentures but not in specie.



(1) UNLOADING 42" RIVETED STEEL PIPE AT SAN MATEO FOR MANILA WATERWORKS.—(2) STEEL PIPE LOADED ON MANILA RAILWAY CO.'S CARS.—(3) ANOTHER VIEW OF PIPE IN TRANSIT.—FABRICATED BY THE ATLANTIC, GULF AND PACIFIC STRUCTURAL STEEL WORKS



STEEL TANK WITH 75-FOOT TOWER—CAPACITY 100,000 GALS. FABRICATED AT THE ATLANTIC, GULF AND PACIFIC CO.'S STRUCTURAL STEEL SHOPS

REPORT ON CONCRETE FOR STREET PAVEMENT

Messrs. W. H. Anderson & Co., of Manila, are in receipt of the following communication from Mr. Fred R. Charles, city engineer of the city of Richmond, Indiana, which contains a report of the latter on the success with which concrete has been used in street paving in his department and is self explanatory. The letter and enclosure follow:

DEPARTMENT OF CITY CIVIL ENGINEER

Richmond, Indiana, March 23, 1908.

MESSRS. W. H. ANDERSON & Co.,

Manila, Philippine Islands.

GENTLEMEN:

I have just received your letter of February 14th inquiring about our concrete roadways. You have been misinformed as to the amount we have, which is not 25 or 30 miles at all, but we have an increasing amount of them, which are proving satisfactory. It forms a pavement in the same class with vitrified brick, and for most localities is considerably cheaper. For durability it ranks with brick, and for slipperiness it is no worse. It is strictly sanitary; exposing no interstices to catch dirt and filth, and can be flushed with water with no injury resulting. For an ordinary street of light or medium traffic, we put down a foundation of gravel or broken stone, 8 inches thick, then six inches thick of concrete made in proportion of 1-2-5; then finish coat 1½ inches thick, made 1 cement, 2 sand. Finish with float surface as rough as possible.

For heavy traffic streets, put down on the foundation 6 inches of concrete proportioned 1-3-6; allow to harden, then cover with sand or tar paper; then put on three inches concrete, 1-2-5 and finish with one and one half inches, 1 to 2.

This permits of renewing the surface, in case of wearing out, without distributing the concrete base. In renewing, the old concrete can be broken up or crushed, and used for the aggregate for the new concrete. A rough sketch is shown on reverse side of this sheet.

Very truly,

FRED R. CHARLES.

REPORT OF CITY ENGINEER.

The concrete pavements at Richmond have attracted considerable attention, and in answer to numerous inquiries and as a matter of general interest, I have today made a thorough examination of these pavements and find condition as follows:

First, I may give some data as to time of construction, cost, nature of traffic, etc. The alley adjacent to the Wescott Hotel was put down in 1896, thus having been down about 11 years. Owing to a settlement of gravel around the foundation of the hotel, the pavement has settled slightly in places, but this settlement which would be disastrous to almost any other kind of pavement, has only resulted in a slight unevenness of the blocks, and otherwise the pavements show almost no sign of wear, although being a narrow alley it carries a large amount of traffic concentrated in a small space. The cost at the time 18 cents per square foot. In 1901 two other important alleys carrying large traffic were paved. In 1902 Sailor street was paved at a cost of 14-1/2 cents This street is in almost perfect condition. Last fall it was necessary to cut a trench through this pavement to lay underground telephone conduits and it was with the utmots difficulty that the concrete could be broken, after laying the conduit the pavement was very carefully repaired, and seems as good as new. In 1903 a very busy intersection at North 7th & A street was paved with concrete at a cost of 16-1/2 cents per sq. ft., and in 1904 Elm place was paved at a cost of 13 cents per sq. ft. The latter street is adjacent to a hotel and some wholesale establishments, and over it is done some very heavy hauling specially from the hardware and iron storage house of Hones Bro., wholesale and retail dealers in hardware. These pavements show a little chipping at the edges of the joints, left for a contraction and expansion and have an occasional temperature crack, but none of these cause any serious detriment, and otherwise the pavements show almost no signs of wear, and will apparently last for years to come, with no repairs or maintenance charges. In addition to those mentioned we have a number of other alleys paved with concrete and during last season on alleys and streets we put down 3,500 square yards. Our citizens are very well satisfied with this pavement. It is very easy cleaned and thus is first class from an aesthetic and sanitary point of view. It is low in first cost, compared to brick, asphalt or bitulithic. Cost for repairs and maintenance will be nothing for a great many years, and life of the pavement will apparently be far greater than any of those mentioned. It is a little slippery for horses but not more so than brick, and considerably less so than asphalt. Considering it from all points, we consider this form of pavement a success.

HON. JOSE M. LERMA

The Hon. José M. Lerma, Representative to the Philippine Assembly from the province of Bataan, Philippine Islands, and member of the Committee on Agriculture, was

HON. JOSÉ M. LERMA

born in the district of Quiapo, Manila, on April 3rd, 1858, and educated in the college of San Juan de Letran and the Ateneo de Manila, graduating from the latter institution as an expert accountant. Mr. Lerma has always taken the greatest interest in the development of the agricultural resources of his native land and is ever ready to further the introduction of modern methods in farming. As a merchant he is one of the largest importers of agricultural machinery and is the representative of several of the most important manufacturing houses in England, Scotland and America. In 1900 he was appointed inspector of the province of Bataan and served faithfully in restoring the country to peace and tranquility, using his personal influence to lighten the suffering of political prisoners and to secure to them their liberty. As a reward for his services he was appointed provincial secretary by Governor Taft in 1900 and in 1902 he was elected by popular vote to the governorship of the province. When his name was proposed for the second nomination, his political opponents filed charges against him, for the purpose of embarrassing him but he was exonerated and when the election for representatives to the assembly was held the people of Bataan evidenced their confidence in him by returning him with a comfortable majority. Mr. Lerma is devoting his time to the securing of legislation for the benefit of the agricultural industry which is suffering from depression and will endeavor to interest the assembly in passing favorable laws providing for the construction of irrigation works in every section of the islands where it would benefit the farmers; the opening up of new markets for farm products; in the reduction of the customs' tariff; the reduction of taxes and the increase of facilities for transportation.

Mr. Lerma's political career began when he was appointed delegate to the Revolutionary Congress at Malolos in 1898.

COAL BIDS OPENED

The bids submitted for the delivery of 60,000 tons of coal to the Chief Quartermaster's Department of the Division of the Philippines were opened in the office of the Chief Quartermaster Manila, May 2nd, 1908, and follow in U. S. C.:

Macondray and Company, Wallsend coal delivered to all ports $5.09.

Macleod and Company, Duckenfield coal for Manila $5.32. The same for Iloilo and Cebu $5 57, Camp Overton, Zamboanga and Jolo $5.67.

Mr. F. T. Figueras, representing W. Scott-Fell and Company of Australia, Lithgow coal $5.44, Wallsend coal $5.50, Mt. Kemblae, Corrimal and South Clifton coals $5.50 for all ports. The firm agreeing to furnish at least fifty per cent of South Clifton and Mt. Kemblae coal.

H. W. Peabody and Company, Aberdare or West Wallsend coals $5.47 for Manila. Outports $6.42. Selection of coal at bidder's option.

W. F. Stevenson and Company, Aberdare or Wallsend coal $5 345 for all ports. Selection of coal at quartermaster's option.

The bids have been taken under advisement and a decision is expected at an early date.

The present contract called for South Clifton coal at $5.60 per ton.

Proposals for the supply of 36,000 tons of coal to the Philippines Government were opened by the director of the Bureau of Supply, Manila, on May 5th, and the following bidders were represented, the prices quoted being in Philippine Currency:

Messrs. W. F. Stevenson and Company; West Wallsend coal: Manila ₱11.70, Iloilo 12.45, Cebu 12.20, Zamboanga, Tacloban, Jolo, Romblon, Legaspi 12.70.

Macleod and Company; Duckenfield coal: Manila ₱11.65, Iloilo 12.14, Cebu 12.04, Zamboanga, Tacloban, Jolo, Romblon 13.64, Legaspi 14.14.

Macondray and Company, Newcastle Wallsend, West Wallsend or Duckenfield coal: Manila 11.47, Iloilo 12.22, Cebu 12.22, Zamboanga, Tacloban, Jolo, Romblon 12.47, Legaspi 12 47.

F. T. Figueras, Lithgow coal: Manila ₱11.14, Iloilo 12.29, Cebu 12.29, Zamboanga, Tacloban, Jolo, Romblon 12 57, Legaspi 13 00. The same firm offered Mt. Kembla, Corrimal or Newcastle Wallsend coals for Manila at 12.00, Iloilo 13 16, Cebu 13.16, Zamboanga, Tacloban, Jolo, Romblon and Legaspi 13.50.

SHANGHAI-SUNGKIANG RAILWAY

The opening of the railway which is to join Shanghai with Hanchow and Ningpo, as far as Sunkiang, a distance of 24 miles, on April 20th, for passenger and freight traffic was made the subject of favorable comment by the Shanghai *Times* with special reference to the fact that the entire project has been carried out by Chinese. The *Times* says:

"In the midst of all the commotion about loans and concessions this line has gone quietly ahead, gradually covering the miles between here and Sungkiang, and at length is able to carry traffic between the two cities. The whole scheme, down to the minutest detail, has been carried out by Chinese. The whole of the permanent way has been supplied from Chinese sources, and much of the rolling stock also. Unforeseen difficulties with the quarry proprietors alone have prevented the present section being fully opened for passenger and goods traffic even before this. As it is, a limited freight traffic is to be commenced from to-day, and we may expect soon to see the line working full time.

"Bridging and permanent way appear to be alike thoroughly sound, and it is to be hoped that all succeeding Chinese railways will hold by this tradition. Sound workmanship at the beginning will save a vast expense in repairs and up-keep later on, and any other policy is a policy of waste. There appears little doubt that the Chinese, whom Dr. Arthur Smith has described as the most economical people in the world, will see the wisdom of building the best they know.

"The district through which the railway runs is apparently one of great agricultural wealth.

"Those of us who are acquainted with the excellent investments that agricultural light railways have become in some parts of Europe and America may easily understand the boon that such a railway must be in a district like that through which the line of which we are speaking runs. It seems probable that the line will be a highly successful enterprise. There are no longer the prejudices against new modes of locomotion and communication that existed in China a generation ago and it may be expected that the peasantry will from the first avail themselves of all the advantages which the line offers them. The covering of China with a network of lines opening up districts like that between Shanghai and Sungkiang would result in an enormous increase in the trade of the Empire."

FRENCH POWER STATION AT SHANGHAI

The new power station of the Cie. Francaise de Tramways et d'Eclairage de Shanghai at Lokawei is described by the *N. C. Daily News* as follows:

"The Lokawei Station is designed to supply current for both tramways and electric light in the French Settlement, the same engines and dynamos serving both purposes, with one difference—that for tramways the dynamos are hyper-compounded i. e., the winding in series of the magnet is in the circuit, whereas for lighting the excitation is shunt only.

"In the Boiler Room three boilers of the Babcock and Wilcox type, with superheaters, have been erected and two more are expected shortly. The heating surface of each boiler is 2,250 sq. ft., the grate area being 43 sq. ft., the production of steam 6,600 lb. per hour and the pressure about 135 lb. per square inch. A "Green Economiser," driven by an electric motor, supplies the necessary water at a temperature of 175° Fahr. Two feed pumps, one Worthington and the other electric triplex, feed the boilers.

"In the Engine Room are three groups of 250 kilowatts and one group of 50 kilowatts has been erected and another group of 350 K. W. will be added in the course of a few months. Each group of 250 K. W. (600 Volts×415 Amperes) is driven by a compound horizontal steam engine working at 125 revolutions per minute. The 50 K. W. group is driven by a rider extension engine at 200 revolutions per minute. This dynamo is of the Dolivo Dobrowsky Patent (500 Volts×100 amperes) and a self induction coil will allow the dynamo to be used for the three wire distributing system. All the engines have surface condensers but for the time being will be used as non-condensing for the supply of water from the creek is not complete.

"For the distribution of current for lighting purposes the three wire system has been adopted and two equalizers working either as generators or motors will regulate the distribution of the current. The switchboard is divided into two sections, one for tramways and the other for light. Automatic circuit breakers are fixed for both purposes. Hand circuit breakers are so disposed that they may be put in connexion either with the tram bars or the light bars according to the use of the dynamos.

"The rolling stock at present in the car sheds consists of 28 cars exactly similar to those in use in the International Settlement."

Forty members of the Shanghai Society of Engineers and Architects headed by President H. King Hiller visited the plant April 25th and were taken over the property by General Manager and Engineer-in-Chief M. M. Coursier, Resident Engineer M. Chateau and M. Murat Electrical Engineer.

WELCOME SOCIETY FOR JAVA

A correspondent of the FAR EASTERN REVIEW, writing from Batavia, advises that the Dutch Government has granted a subsidy of 25,000 guilders for the establishment of a Welcome Society for the reception of tourists in that delightful colony. An equal amount to that subscribed by the enterprising government has been advanced by the businessmen of Java. The organization is now perfected and visitors to Batavia will be provided with attractive guide books in English and guides speaking the English language, and thoroughly versed in the attractions of the colony, will be made available to tourists.

This innovation will be gladly welcomed by visitors to the colony and is an indication of the progressive spirit abroad among the businessmen of Java.

ANOTHER HONGKONG AIRSHIP

The latest competitor for recognition as an aerial navigator is introduced by the *China Mail* in the person of Mr. George Lanzius, the well-known mining expert of Hongkong, who intends patenting his airship in America.

The following description is given by the *Mail*:

"It is to be built entirely of aluminum, cigar shaped and comprising a total weight of 20 tons and a carrying capacity of 20 tons. She will run in any reasonable weather 40 miles an hour with a carrying capacity of 20 tons; her actual horse power will be 600 and the engines weigh 5 tons maximum. She will be able to float in the air for an indefinite period but under way at 40 miles an hour she will be able to travel a distance of 2,000 miles.

"Mr. Lanzius claims that the atmospheric pressure will have no effect whatever on his airship and during the various climatic conditions through which it passes, it will be unnecessary to discharge any gas in order to keep it at the required distance from terra firma This also does away with the necessity of carrying ballast.

"Although it is extremely unlikely that an accident will happen," proceeded Mr. Lanzius, "it will be so constructed that it will descend like a parachute and remain within a distance of ten feet from the ground."

The inventor has been working at the scheme for the last nineteen years, and its primary object is to be used for commerce, and in this respect our informant is confident it will ultimately be possible to convey the mails from London to Hongkong in twelve days, or from London to New York in two days, not to mention getting round the world in well under twenty days, which is only half the time it is possible to do the distance in at the present time.

It is not an airship but rather of the nature, as Mr. Lanzius preferred to term it, of a balloon, and will be entirely different from that invented by Count Zeppelin of Germany.

This is the second aerial machine devised in Hongkong, the first (as described in the *China Mail* some time ago) being invented by Mr. Tse Tsan Tai.

NEW PUBLICATIONS

Subject Matter Index on Mining, Mechanical and Metallurgical Literature for the Year 1902, issued by the North of England Institute of Mining Engineers and edited by the Secretary, Mr. M. Walton Brown, is a remarkable compilation of references upon subjects of special interest to mining and mechanical engineers. It contains an alphabetical list of publications indexed geographically; index to the alphabetical list and a subject matter index covering every conceivable subject as well as an index of authors. Published by the Institute at Newcastle-upon-Tyne, Eng.—Price, 42 shillings.

Manila, The Pearl of the Orient, by The Manila Merchants' Association, is a new guide book to the Philippines containing an interesting compilation of the attractions of the capital city, Manila. It is distributed by the Association and, as announced in the preface, its purpose is to disseminate information among the tourists about Manila, many of whom, according to the editor, who quotes Mr. Dooley's friend Hennessy, "Hardly know whether the Philippines are Islands or canned goods." The volume is appropriately illustrated and contains maps of the Walled City, the City of Manila and the Philippine Islands.

Railway Enterprise in China, by P. H. Kent, and published by Edward Arnold, London, Eng., is received. The author announces in the preface that his aim is to give a succinct and unbiassed history of the origin and growth of railway enterprise in China, an important feature of the Far Eastern Question, and that the arrangement of the matter is not strictly chronological but rather chronological, subject to geographical conditions. The volume fully meets the purpose announced by the author and is probably the most valuable publication, as a source of authentic information, that has come out of the Orient and will prove of the greatest value to students of Chinese history. The author divides his subject into three stages—the history of the attempts made by foreigners to allow the introduction of railways; a progressive movement emanating from the Chinese themselves, and the era of concessions in which the dominant feature is foreign control. The volume comprises eighteen chapters with appendices containing the different concessions and loan agreements relative to the railways, together with maps of the different defined systems and a general railway map of China. Price 12s. 6d. Net.

The Directory & Chronicle for China, Japan, Corea, Indo-China, Straits Settlements, Malay States, Siam, Netherlands India, Borneo, The Philippines, Etc, for the year 1908 (forty-sixth year of publication), issued from the Hongkong Press Office, Hongkong, has reached our desk and is well up to the standard of previous publications with the compilation brought up to date. Price 30 shillings Net.

Jubilee Number of The Indian and Eastern Engineer is more than a representative issue of the oldest engineering journal in the East. It was established by Messrs. W. Newman & Co. in April, 1853, and during its history it has been associated with the marked development of India and the East. The Jubilee issue contains articles reproduced from the publication appearing fifty years ago, among which is the reproduction of photographs of the launching of the Great Eastern, the greatest engineering event of that period. Besides these special features the journal is replete with interesting articles that bring the publication up to its highest standard. "The Railway Question in Manchuria" is the subject of special comment and an illustrated description of the Barsi Light Railway, the finest in India, takes up an important space in this issue. Among the other subjects dealt with in "Notes on Current Engineering" are: "The Conquest of the Air," "L'Houille Blanche" (White Coal). A French colloquialism for electricity derived from water-power). "The Gyroscope," "Windmills & Electric Power."

FAR EASTERN COMPANY REPORTS

SIAM COMMERCIAL BANK, LIMITED.—The report for the half-year ended March 31st showed a net profit of Ticals 183.511.49. Out of this the usual dividend of 5% was directed paid and the balance carried to the reserve funds, following the general policy of the bank for a continuous strengthening of the reserves.

THE DEUTSCHE BANK.—The gross profits at the end of the year 1907, including £55 790 brought forward, were £2,678,928, disposed of as follows: Dividend of 12% absorbing £1,-200,000; £91,596 to reserves; £45,161 to the directors; £122,500 to the superannuation fund and gratuities to the staff and £56,500 carried forward to new account.

THE NATIONAL BANK OF INDIA.—The net profits for the half year ended December 31st, 1907, and including the amount brought forward from the previous term amounted to £364,000. The directors recommended the payment of a dividend for the term of 12% per annum; to write off £10,000 depreciation house property account; to carry £10,000 to the pension fund; to capitalize £200,000 by issuing 16,000 bonus shares of £25 each on which £12 10s. will be credited as paid and allotted to present shareholders in the proportion of one share to every three shares held, and the balance of £72,000 to be carried forward.

MERCANTILE BANK OF INDIA.—The directors of this institution recommended a dividend of 6% per annum on A, B, shares, free of income tax; £40,000 carried to reserve fund; £2,000 to officers' fund and £24,600 carried forward.

FRASER & NEAVE, LIMITED.—The tenth annual report for the year ending December 31st, submitted by the directors, places the credit to profit and loss, after writing off depreciation and bad debts, for the year at $53,814.35 and with $20,529.09, carried forward from last account, gave the sum of $74,-343 44 recommended disposed of as follows:

The payment of a dividend of 15% and bonus of 2.5% absorbing $39,375 00; $10,000 to the general reserve, and the balance of $24,968.44 carried forward. The appropriation to the reserve brings it up to $132,500.

ROYAL JOHORE TIN MINING CO., LIMITED.—The report for the year ending February 20th, 1908, shows, after writing off working expenses and $,138 for prospecting, $2,002 for cost of furniture. ore bags, repairs and depreciations, and $764 for bad debts, at the credit of profit and loss account a net profit of $1,174, which was carried forward.

EASTERN SMELTING CO., LIMITED.—The statutory meeting of this company was held in March and the board of directors were chosen. The payment of $10 for every meeting attended and 2.5% of the net profits, after a 10% dividend is paid the shareholders, was authorized as remuneration for the directors.

UNION INSURANCE COMPANY OF CANTON, LIMITED.—The following is the recommendations made by the board of directors in the report submitted at the annual meeting held April 23rd:

The balance of working account on 31st December 1907 was $2,506,011.22.

The board recommends that an interim dividend of $30 per share be paid to shareholders, absorbing $372,000, and that a bonus of 20 per cent be paid to contributors, absorbing about $250,000, and that the remainder be carried forward.

JOHN TRAVERS & SONS, LIMITED.—The profit for the year to which was added £11,228, brought forward from previous account, made in all £30,726 to the credit of profit and loss. After paying off interest, etc., the available balance was £6,655. The directors transferred £5,000 from the Reserve and a final dividend of 2 5% making 5% in all for the year was directed paid, and the balance £1,655 carried forward.

THE YANGTSZE WHARF AND GODOWN CO., LIMITED.—The report for the year ending December 31st, shows a net profit of Tls. 50,466.24 making a credit in all to profit and loss of Tls. 63,400 85 including the amount brought forward from previous account. This amount was disposed of as follows:

	Tls.
write off 2½% on book value of Buildings Tls. 255,516.90	6,387.92
write off 10% on book value of Steam Launch Tls. 8,500	850.00
to pay a Dividend of 18% on Capital of Tls. 250,000	45,000.00
and to carry forward	11,162 93
	Taels 63 400 85

THE CHINA TRADERS INSURANCE COMPANY, LIMITED.—The following is the résumé of the board, submitted at the annual meeting held April 23rd, for the year ending December 31, 1907: The balance of working account on the 31st December, 1907, was $1,157,832.00. The Board recommends that an interim dividend of $3 per share be paid to shareholders, absorbing $72,000, and that a bonus of 20 per cent be paid to contributors, absorbing about $125,000, and that the remainder be carried forward.

THE KOOHIEN TRANSPORTATION AND TOWBOAT CO., LIMITED.—At the annual meeting a dividend of 5% was declared after writing off Tls. 16,000 for depreciation and adding Tls. 5,000 to the marine insurance fund.

SEREMBAN RUBBER CO., LIMITED.—The profit on the year's working amounted to R 216,559.83 equal to 39.01% on the paid up capital. With the balance of R 3,112.32 brought forward from previous account the total credit to profit and loss was R 219,672,22. Out of this a final dividend of 15% was paid making in all for the year 33%, and a balance of R 1,522.22 carried forward.

BANGKOK DOCK COMPANY, LIMITED.—At an extraordinary general meeting the resolution passed at the meeting held March 16th providing that the capital of the company be increased to Ticals 1,000,000 was confirmed by the following resolutions:

That the present Share Capital of 4,000 shares of Ticals 166⅔ each be converted into 8,000 Shares of Ticals 100 each by the transfer from Reserve Fund of Ticals 133.333.33; also that 2,000 additional Shares of Ticals 100 each be issued at a purchase price of Ticals 150 per share, thereby making the new Share Capital 10,000 Shares of Ticals 100 each. Further, that the additional Capital of 2,000 shares be called up as follows, viz:—10% on 1st July, 1908, 40% on 1st January, 1909, and the balance as may be required by the Directors, which will probably be 25% on 1st January, 1910, and 25% on 1st January, 1911.

The new issue of Shares shall be offered in the first instance to the present Shareholders *pro rata*, and in the event of any not being applied for, they shall then be offered to the Employees of the Company, after which any surplus shall be again offered to the Shareholders.

BANGKOK DOCK COMPANY, LIMITED.—A dividend of 12.5% was declared for the year with a bonus of 2.5%.

HONGKONG MILLING COMPANY, LIMITED.—An application filed in the Supreme Court of Hongkong asking for the winding up of the company was granted by the Chief Justice in Chambers and Mr. H. F. Chard, the assistant manager, was appointed official receiver.

THE TRANSPORT COMPANY "MOTOR".—This company which has been operating only since September last with its motor boats, at a meeting held March 31st, decided to increase its capital from Ticals 150,000 to Ticals 200 000. The net profit amounted to Ticals 16,156 30 out of which 7% was paid on the capital paid up.

HONGKONG ELECTRIC COMPANY, LIMITED.—The directors submitted the following report at the annual meeting held May 2nd, for the year ending February 29th, 1908:

The balance at credit of profit and loss account is $159,637.13; after deducting directors' fees (3,000) there remains a sum of $156,637.13 available for appropriation, and your directors recommend that this be disposed of as follows:

To pay a dividend of 10 per cent:— Say $1.00 per share on 60,000 shares	$ 60,000.00
To pay a bonus of 2 per cent:— Say 20 cents per share on 60,000 shares	12,000.00
To write off plant account for depreciation	58,308.60
To write off property account for depreciation	13,612.10
To pay a bonus to staff	3,395.00
To carry forward to next account.	9,321.43
	$156 637.13

SHANGHAI HORSE BAZAR COMPANY, LIMITED.—The report for the half-year ending December 31st shows a balance to the credit of profit and loss of Tls. 15,429 68 which was carried forward. An interim dividend is anticipated during the next term.

JEBONG RUBBER COMPANY, LIMITED.—The credit to profit and loss account for the year ending December 31st, 1907, amounted to Rs. 126,228.94 after writing off 10% for depreciation. A final dividend of 4% making 7% for the year was authorized and Rs. 20,228.94 were carried forward.

NETHERLANDS INDIA DISCOUNT BANK.—This institution will pay a dividend of 8% for the year ending December 31st, 1907, if the recommendations of the directors are confirmed. This institution has paid an average dividend of 7% for 50 years and 8% for the last six years. The directors have also recommended that the capital be increased to F. 12,000,000 to be fully paid up by December 31st, 1915. The annual meeting of the shareholders will be held at Batavia June 3rd.

EAST ASIATIC COMPANY.—This company has declared a dividend of 8% after paying kronen 250,000 into the reserve fund, an equal amount into the pension fund and leaving a balance to carry forward.

THE CHINESE ENGINEERING AND MINING COMPANY, LIMITED.—This company has declared an interim dividend of 1s. 6d. a share free of tax for account of the year ending February 29th, 1908.

MEKLONG RAILWAY CO., LIMITED.—The first annual report of this company which covers the period between July 12th, 1907, the date of the amalgamation of the Tachin and the former Meklong Railway companies, shows a net profit of Ticals 70,091.59. Out of this a dividend of 2.5%, absorbing Ticals 55,750, directors' fees and manager's bonus, Ticals 4,787.50, were paid and the balance of Ticals 9,554.09 was carried forward.

VICTORIA JUTE COMPANY, LIMITED.—The profit for the year ended December 31st amounted to £82,289. 5s. 5d. out of which interim dividends were paid in August last of 5% on preference shares and 4 on ordinary shares and a final dividend of 5% preference and 6% ordinary, making 10% for the year, was authorized.

GOLDEN HOPE RUBBER ESTATE, LIMITED.—A dividend of 6% was declared last month for the year 1907 and the sum of £2,017 was carried forward.

NEW AMOY DOCK COMPANY, LIMITED.—The report for the year ending December 31st, 1907, shows a profit of $11,111.08 to which is added the balance of $2,618 16 making a total of $14,284.16 which was disposed of as follows:

Write off Amoy Dock $1,885.92, write off plant and machinery $1,416.73, commission to manager $1,166.60, general managers and consulting committee $600, transfer to repairs and renewals account $4,000, dividend of 50 cents per share $5,000, and carry forward $1,214.91, making a total of $14,284.16.

GREEN ISLAND CEMENT COMPANY, LIMITED.—The following is the report for the year ended Dec. 31, 1907, submitted at the annual meeting held April 25th:

The net profit, after providing for depreciation on buildings and machinery, launches, lighters, etc., and including the amount brought forward from the previous year, amounts to $406,078.16 disposed of as follows: —To place to Reserve Fund, $1,000.00; To pay a final dividend of 75 cents per share on 400,000 shares, $300,000.00; Add. Interim dividend of 50 cents on 200,000 shares, $100,000.00; To carry forward to the credit of next year's account, $5,078 16; the capital of the Company was increased by special resolution in March last to $4,000,000.

Consulting Committee.—The Hon. W. J. Gresson having left the Colony, the Hon. H. Keswick was invited to take his place on the Consulting Committee. In accordance with the Articles of Association, Sir Paul Chater, C. M. G., the Hon. H Keswick and Dr. J. W. Noble retire, but being eligible offer themselves for re-election.

GERMAN AUSTRALIAN STEAMSHIP COMPANY.—The dividend declared by this Company was 8% for the year 1907. The gross receipts for the year were Marks 3,519,909 against 3,307,707 for 1906.

SELINGSING RUBBER COMPANY, LIMITED.—The balance to the credit of profit and loss for the six months ending December 31st, 1907, after charging the usual expenses and writing off preliminary expenses was R. 1,111.15 which was carried forward to next account.

LUZON SUGAR REFINING COMPANY, LIMITED.—The result of the year's operations was a profit of $3,390.46 which reduces the debit to profit and loss account to $135.132.55. There was little demand for the product of the refinery during the year 1907, but the directors believe that the prospect for 1908 is much brighter.

MYSORE GOLD COMPANY, LIMITED.—A dividend of five shillings per 10 shilling share was declared by this company for the four months ended December 31st, 1907.

DUNNING & CO., LIMITED.—Out of the sum of $15,123.90 to the credit of profit and loss account for the year ended February 29th, a dividend of $5.00 a share, equal to 10%, was paid; $5,000 placed to the credit of good will and $123.90 carried forward.

CEYLON ICE AND COLD STORAGE CO., LIMITED.—This Company has declared a dividend of 7.5% for the year.

PATALING RUBBER ESTATES SYNDICATE, LIMITED.—This company has declared a final dividend of 25%, which, with the interim paid in October of 10%, makes 35% for the year ending December 31st, 1907.

DELI TOBACCO COMPANY, LIMITED.—After carrying fl. 70.000 to the reserve fund, making it fl. 174,266, a dividend of fl. 500 a share or 50% for the year was declared.

CENTRAL STORES, LIMITED.—The report for the year showed a credit balance of $46,252.02 and after paying fees, writing off depreciation, bad accounts, etc., a balance of $17,852.02 was carried forward.

TOYO KISEN KAISHA.—The net profit for the half year was yen 203,084.459, which with yen 5,562.650 brought forward from previous term and yen 100,000 000 brought from reserve fund for equalization of dividend made yen 308,647.119 available. Out of this amount a 12% per annum dividend was paid absorbing yen 289,900.000; yen 10,200.000 to reserve and yen 8,547.119 carried forward.

CHINA LAND AND FINANCE COMPANY, LIMITED.—The credit balance for the year ended February 29th, 1908, was Tls. 49,058.37, out of which a dividend of 10% absorbing Tls. 34,925.00 was paid; Tls. 11,000.00 written off good will and the balance of Tls. 3143.37 carried forward to new account.

ANGLO FRENCH LAND INVESTMENT COMPANY, LIMITED.—The report of the directors for the year showed a balance of Tls. 136,531.43 inclusive of Tls. 3,288.14 brought forward from previous account. This amount was distributed as follows:

Dividend of Tls. 6 per share	120,700.00
Depreciation and Renewals Account	10,000.00
Carry forward	6,531.43
	Tls. 136,531.43

THE HONGKONG ROPE MANUFACTURING COMPANY, LIMITED.—At the annual meeting of this company, a final dividend of $1.20, making $2 in all for the year 1907, was declared.

SANDYCROFT RUBBER CO.—The amount to the credit of profit and loss at the end of the year, January 31, 1908, was $16,561.77, out of which it is proposed to pay a dividend of 15%; transfer $500 to employees bonus account and to carry forward $1,211.77.

MINING NEWS

F. M. S.

The output of the Kuantan Tin Mining Co.'s Mines for March follows:

Kuantan	64 50
Yip Chin	72.00
Un Chong	88.50
	225.00 Picuis

Belat Tin Mining Co.'s March Output:

Belat	160.50 Piculs.
Tam Kim	150 00
Wong Kow	81.75
Ah See	28.50
Sulai	21 75
Ah Koon	19.50
Low Siong	6.00
Sungei Langsat	3.75
Total	471.75 Piculs.

The following outputs for March are reported:—

Bruseh Hydraulic	460 Piculs.
Societé des Etains de Kinta	2,373
Tronoh	2,701
Lahat	264
Mendrus	214½
N. Tronoh	340½

The total of Tin Ore exported by the tributors on the lands of The Royal Johore Tin Mining Coy. Ltd. during the month of March, was Piculs 180.

MARCH OUTPUTS.—Pusing Lama 415 pikuls value $16,550.
Kledang 325 piculs.
Chenderiang group 1,047 piculs.

Selangor tin returns January to March show the following in pikuls.—

	1908.	1907.	
Block tin	8,388.23	22,848.18	— 14,459 95
Tin ore	67,597.68	41,596.58	26,001.58
Duty	$628,150.19	$860,153.07	—$232,002.88

Kanaboi	122 pkls.
Kinta Tin Mines Ltd	460 ,,
Gopeng Tin Mining Co., Ltd	550 ,,
New Gopeng Ltd	210 ,,
Redhills Tin Mining Co	360 ,,
Tambun Mine	1,700 ,,

PERAK TIN EXPORT.—The following are the "advance figures" of the export of tin from Perak for March, 1908:—

Tin	5,380 pikuls	54 katties.
Tin-ore	33 582 ,,	75 katties.
Duty	347,407 ,,	28 cents.

The total output from Perak, Selangor and Negri Sembilan was pikuls 213,776.95.

GOLD OUTPUT

Raub Austrailian Gold Mining Company's output for the four weeks ending March 28 follows:

Bukit Koman. Stone crushed 3,862 tons, Gold obtained 922 ozs., Average per ton 4.77 dwt.

Bukit Malacca, Stone crushed 1,959 tons, Gold obtained 157 ozs., Average per ton 1.60 dwt.

PHILIPPINE ISLANDS

The Benguet Consolidated Mining Co.'s output for the six weeks ended April 20 was 358 ounces. The Paracale Gold Dredging Company reports 173 ounces for the three weeks ending April 22.

LUMBER SHIPMENTS

The following announcements of lumber shipments from the Pacific coast to the Orient are published in the *Timberman*, an enterprising trade paper published in Portland, Oregon, for March:

The British steamer Taunton will load lumber on Puget Sound for Australia during the month.

The American steamship Shawmut will sail early in April for Japan, China and Manila, with a lumber cargo, from Tacoma.

Mukilteo Lumber Company, Mukilteo, Wash., will ship about three and one-half million feet of lumber to Japan early next month.

The British steamer Inverkip has been chartered by Bowling & Co., to load mining timbers for Port Pirie, Australia. The Inverkip will carry about 3,200,000 feet.

The new steam schooner Capastrano received her first cargo this month at the mill of the Portland Lumber Company, Portland.

The Norwegian steamship Tungus cleared from Portland February 27 with 761,000 feet of lumber for Hongkong. The North Pacific Lumber Co. furnished the cargo.

The Norwegian steamship Sommerstad will carry a cargo of lumber to Shanghai for the Oregon Pine Export Lumber Company, sailing about the middle of the month of March.

The Reliance Lumber Company, of Tacoma, will ship about 350,000 feet of lumber to Yokohama, Hamburg and London, on the ship Ningchow, which will clear March 18. This company will also furnish part of the cargo for the British ship Hilston, which will clear for Rotterdam early in April, and the entire cargo for the British bark British Yeoman, which will leave for Sydney, Australia, the latter part of April.

INSULAR LUMBER CO.

One million feet of lumber from the Insular Lumber Co.'s mills in Negros has arrived at Manila and is offered at lower prices here than the market price of Oregon pine. This promises to revolutionize the Philippine Lumber trade. Mr. Chas. S. Derham, the manager, states that the company is equipped to furnish the product in any quantity to the trade.

EAST BATAN COAL MINES

The announcement is made by Mr. A. M. Betts, manager of the Company, that over 80,000 tons of coal have been blocked out and a thirty HP engine is being installed to supply power for the cable which carries the product to the wharf from the interior of the mines. The output daily, heretofore, has been about 60 tons but this will be greatly increased with the installation of the machinery now under way.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPH LINES, ETC.

INTERNATIONAL WIRELESS UNION.—Japan has signified her intention to join the union and the agreement will go into effect July 1st.

BATAVIA-COCOS CABLE.—The opening of this line last month has not only provided an alternate route to Europe and Australia but gives a more direct route to Africa.

TAIREN ELECTRIC RAILWAY.—The Manchurian Railway Co. has made application for a franchise to install an electric system in the city of Tairen to cost approximately Yen 1,000,000.

ELECTRIC LIGHTS FOR NANTAO.—This suburb of Shanghai was recently lighted to the extent of several streets by the Chinese Electrical Co. of Nantao and will be extended from time to time.

PINANG TRAMWAY.—The profits for the year were $20,834.83, which paid all the interest on the capital and left a balance of $5,066.36. On the first year 1906 there was a deficit of $3,486.90.

PENANG ELECTRIC SUPPLY DEPARTMENT.—The report for the year shows a profit of $19,384.38 or about 4.5%. The expenditure was higher than in former years owing to 14% increase in the cost of coal.

WIRELESS AT WOOSUNG.—By direction of Viceroy Tuan Fang the director of Nanking telegraph station will select a site for a wireless station at that point and to provide accommodation for the staff.

MONGOLIA MOTOR CAR SERVICE.—A company is being formed for the purpose of establishing communication between the more important towns in Mongolia and to carry the Imperial mails.

NIKKO-ASHIO ELECTRIC RAILWAY.—A company has been formed with a capital of yen 200,000 and permission has been secured to construct an electric line connecting these two points. The distance is 7 miles.

CANTON TELEPHONE COMPANY.—The service at Canton costs $40 per annum and the report for the year shows about 1500 susbcribers. An effort is being made to secure long distance connections with Hongkong.

INSTALLATIONS ON EMPRESS LINERS.—The contract for the installation of 500 light direct coupled steam engines and dynamo sets complete with switchboards on the Empress steamers has been placed with Messrs. Wilks & Jack's of Hongkong.

MOTOR WATERING CARTS.—The motor watering cart has been used with success in Singapore by the municipality and is found to be more economical than the use of bullocks or horses as well as more efficient. Pinang is also considering their introduction.

HAKONE ELECTRIC CO.—Some business men of Yokohama and Tokyo intend to erect a power station at Hakone with a view to supplying electric light in Yokohama. The promoters have applied to the Kanagawa prefectural government for a charter.

WIRELESS FOR CHINESE ARMY.—Two wireless outfits ordered by the Chinese provincial government through Messrs. Carlowitz & Co. have arrived at Nanking and are being installed. The system has a capacity of sending messages a distance of 250 li.

NEW ZEALAND ELECTRIC RAILWAYS.—Plans are being discussed for the construction of an electric line connecting Lower Hutt and Petone with the railway to Wellington and to provide electric lighting for the district at a cost in all of about £20,000.

TRANS-RUSSIAN WIRELESS SERVICE.—Apparatus has been ordered by the Russian government for the establishment of a wireless service between St. Petersburg and Vladivostok. Stations will be established for relay on the Ural and the Atlas mountains.

TOKYO ELECTRIC LIGHT CO.—The new water power generating plant of this company was put in operation March 27 for the first time and an announcement of a reduction of rates to that charged by the Tokio Railway Co. for the same service went into effect April 1st.

SOBU ELECTRIC RAILWAY.—This company which has a capital of yen 3,500,000 has applied to the government of the Kanagawa prefecture for a charter to construct and operate a line between Shubuyo in Tokio and Matsuda on the Tokaido line, a distance of 65 miles.

KEIHIN ELECTRIC RAILWAY.—This company is endeavoring to raise a loan for the purpose of reconstructing the bridge across the Rokugo-gawa at a cost of yen 500,000; to increase the capacity of its generating plant at a cost of yen 200,000 and to extend its line so as to connect with the Tokyo tramways.

TAKISAKI-HIRATSUKA ELECTRIC RAILWAY.—The construction of this line with a view to covering the distance between these two important centers, 83 miles, in less than two hours is believed to have been arranged for. It is understood that the company has been formed with a capital of 7,500,000 subscribed by an English syndicate for the purpose.

ELECTRICAL INSTALLATIONS.—Messrs. Wilks and Jack's of Hongkong have secured the contract for the installation of complete electric light systems including searchlights, etc., in the two new Chinese gunboats being built at Hongkong. This firm has also secured the contract for the installation of a suction gas plant and electric wiring for eight elevators in Messrs. Butterfield & Swire's godowns at Kowloon.

NANKING ELECTRIC TRAMWAY.—Viceroy Tuan Fang is interesting himself in the installation of an electric railway in the city of Nanking which will cost when completed about Tls. 200,000 and will cover about 14 miles of streets. The line will connect Hsiakuan with the native city through Chinchuan City gate and will be extended to meet the increased demands upon it. The *China Critic* states that the scheme has been approved by the Empress Dowager.

SYDNEY POWER HOUSE.—The opening of the extensions of the Sydney electric railway system to traffic will be delayed until the arrival of the two new turbine generators, the delivery of which has been delayed until June. When they are installed the capacity of the plant will be 23,400 horse power. The *Australian Hardware Journal* is of the opinion that in a few years it will be necessary to build another power house to keep pace with the rapid expansion of the system.

THE ANGLO-JAPANESE WATER POWER ELECTRICITY CO.—The capital of this company has been fixed at yen 10,000,000, one-half of which is paid up, and will proceed at once to develop 32,000 horse power from the Oigawa as the first step in carrying out its gigantic scheme to develop about 140,000 horse power from the same source. Three engineers are now busy making the preliminary survey and over 20,000 horse power has already been contracted for by the Tokyo Railway Co. and manufacturers at Tokyo.

RAILWAYS AND RAILWAY SUPPLIES

YOKOHAMA RAILWAY.—The Kanagawa-Hachoji section of the Yokohama Railway will be opened for traffic June 1st.

NANAO RAILWAY PURCHASE.—The price of the line which was taken over last October has been fixed at yen 1,491,355.

KIANGSU RAILWAY.—The announcement is made that the line is open for traffic as far as Sungkiang. Temporary depots have been provided.

TOKAIDO RAILWAY.—The completion of the construction of the second line between Fukuroi and Nakadsumi and between Miyashiro and Kariya has been announced.

THAWE-TIWARIPATTI RAILWAY SURVEY.—The railway board of India has authorized the survey covering a distance of 24 miles connecting Tiwarpatti with the North-western Railway system.

JAPANESE RAILWAY PURCHASES.—The price of the Nippon Railway which is to be taken over by the government has been fixed at Yen 142,523,600, and that of the Kyushu road at yen 118,856,447.

HEILUNGKIANG RAILWAY.—It has been decided to construct the section of this proposed road between Ngaun-Chi and the capital of Heilungkiang first. The survey has been completed for some time.

THE JOHORE STATE RAILWAY.—The total appropriation for this railway for 1908 amounts to $2,727,393, or approximately the same amount as the year previous and making in all for the road to date about $5,000,000.

TIENTSIN-PUKOW RAILWAY.—The site for the railway station at Sinchwang has been selected and the land secured. Latest advices from Tientsin are to the effect that the construction of the line will begin early in the fall.

HONGKONG-CANTON RAILWAY.—The Peking authorities have indicated that they desire to work conjointly with the British authorities so that there will be no unnecessary delay in the construction of the Chinese section of the road.

TRANS-FORMOSAN RAILWAY.—On May 1st, the entire line across the island was open to traffic. This system of railways is a compliment to the energy of the Japanese and will prove the greatest factor in opening up the country for development.

MANCHURIAN BROAD GAUGE.—The authorities decided last month to postpone the opening of any section of the broad gauge until May 20th, when it will be possible to proceed through to Kwangchentz instead of to Mukden, had they carried their original plans.

TIENTSIN-PUKOW RAILWAY.—The £5,000,000 loan at 5% has been oversubscribed at 98.75 in London and Germany. It is understood that the head office will be located at Peking and that orders have been placed with Japanese contractors for sleepers and coal.

SEOUL-FUSAN RAILWAY.—The Japanese government will hand over the bonds covering the purchase price of this line to the shareholders, June 1st. Certificates will be honored by the Bank of Japan and each share of yen 30 paid up will entitle th holder to yen 39.30 worth of bonds.

KIRIN-CHANCHUN RAILWAY.—An estimate of yen 90,000 a mile for cost of construction is contained in the report of the engineers who have concluded the preliminary survey. The length of the road is 30 miles and it is expected that it will be opened for traffic by the spring of 1910.

SANNING RAILWAY.—The section covering a distance of 40 miles between Kung Yip and Sam Hap is expected to be completed by the end of the year and it is the purpose of the company to extend the line to Kong Moon and Fat Shan to join the Yuet Han line as soon as funds are available.

INDO-CHINA RAILWAYS.—A recent report of the development of the railway system by the French in carrying out the scheme prepared in 1899 shows 903 kilometers completed out of the entire 1,500 kilometers proposed. The entire expense of completing the scheme will reach the vicinity of francs 275,000,000.

TO CONNECT TOKIO AND WIJU.—With the completion of the reconstruction of the Seoul-Wiju Railway this month, and the increase of steamers plying between Shimonoseki and Fusan, direct connection covering a distance of 1,400 miles will be established. The distance between Fusan and Wiju is 600 miles.

BELGIAN SYNDICATE INTERESTS.—The Syndicate has submitted a communication through the Belgian minister at Peking to the authorities asking for permission to extend the Chengting-Taiyuanfu line to Hsianfu, Shansi, and to construct a number of branches tapping the several coal deposits in that section. The request is based upon promises claimed to have been made by Sheng Kung-pao in 1904.

TAI-TSAO RAILROAD.—The survey of this line, which when completed will be 90 li in length, is well under way and most of the right of way secured. The line will very probably be made a branch of the main line of the Tientsin-Pukord and does not extend beyond the borders of Yi county, Shantung. The entire cost of construction is being borne by the coal mines North of Yihsien and the transportation of coal will be the principal purpose of the road.

JAPANESE RAILWAYS.—The rolling stock of the Japanese government system is not sufficient to meet the increased business of the different lines. The bureau has about 2,000 locomotives, an increase of over 40% compared with last year, but this increased capacity is not keeping pace with the 16% increase of freight. Arrangements have been made to secure 200 locomotives belonging to the South Manchurian Railway and 60 additional engines have been ordered abroad.

PEKING-HANKOW RAILWAY.—The redemption of the famous Peking-Hankow Railway from the Belgian Syndicate is now the subject of negotiations on the part of the Peking authorities. The loan which amounts to about 112,500,000 francs may be undertaken by the Chinese who desire to control the road. The Chinese government has the right to redeem the road after October 1907 and before 1930. According to the best information a Chinese company is to be formed; a second Belgian loan floated to redeem the first loan and the road be given as security. It is the purpose of the Chinese to control the road.

SOUTH MANCHURIA RAILWAY.—It has been announced that the head office of this company will be transferred from Tokio to Dalny and the office at Tokio will be maintained as a branch office. The *Dalny Ryoto Shimpo* states that the company intends to expend yen 100,000,000 as follows:

For broadening the gauge for the whole length of the railway, 20,000,000; for improving the harbor of Dalny, 5,000,000; for double tracking the railway from Dalny to Sojatung (the first station south of Mukden), 10,600,000; for capitalizing the Fushun and Yantai coal mines, 4,000,000; for buying land and erecting godowns, 8,000,000, for capitalizing the marine transportation service, 10,000,000; for improving the railway between Antung and Mukden, 22,000,000; and for a reserve fund, 11,400,000.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

CHEMULPO WATERWORKS.—The finance department has made an appropriation of yen 60,000 for the construction of a new water supply system at Chemulpo.

NEWCASTLE, N. S. W., HARBOR IMPROVEMENT.—The construction of 1200 feet of new wharfage in the basin is now under way and another year will probably see the beginning of the work on the inner basin.

SIBERIAN WATERWAY IMPROVEMENTS.—Surveys of the rivers along the route of the Siberian Railway are being made with a view to constructing a waterway as nearly paralell with the line as possible. Canals will be built where it is necessary to connect the rivers and reduce the distance.

KANAGAWA-SHINAGAWA CANAL.—A scheme is on foot among the businessmen of Yokohama to construct a canal connecting those two points, says the *Yokohama Chamber of Commerce Journal*. This canal will be 20 miles in length and would facilitate the transportation of merchandise to and from Yokohama.

HANKOW RECLAMATION WORK.—At a recent meeting of the Chinese Chamber of Commerce Tls. 900,000 were subscribed as nucleus of a fund for the reclamation of the waste land adjoining the foreign settlements. The sum of Tls. 4,000,000 will be necessary, it is estimated, to carry out the plans under consideration.

WHANGPOO CONSERVANCY.—The Dutch East Asiatic Dredging Co. in charge of this work has two additional dredgers on the way out from Europe, which upon their arrival will increase the number in operation to five. One of those on the way is a suction dredger and is making her passage under her own steam.

TAIREN HARBOR IMPROVEMENTS.—The expenditure of yen 10,000,000 during the next five years in this work by the Japanese authorities has been decided upon. When the plans for the improvements have been carried out the capacity of the port will be increased to over 1,000,000 tons annually or double the present volume.

CHINESE NAVAL STATION.—The selection of Mendusa Creek Harbor off Nimrod Sound on the coast of Chekiang, South of Ningpo, is being considered. It affords a protected anchorage three miles in length and offering an average of six fathoms at low tide. A survey of these waters has been made and the report is very favorable.

NEW HARBOR AT OMUDA.—The first stage of the work on this project under the direction of the Mitsui company was completed last month and the tide was admitted. When completed this work will cost about yen 4,000,000 and provide for direct shipment of coal from the Miike mine instead of having to take cargo by way of Kuchinotsu.

FORMOSAN PUBLIC WORKS.—The plans of the Formosan government include the expenditure of yen 30,000,000 in the establishment of an irrigation system to cover a period of 15 years; the improvement of Takow harbor at an expenditure of yen 4,733,000 to be completed in six years and yen 4,000,000 for the completion of the Taitong railway by the end of 1915.

HAIPHONG HARBOR IMPROVEMENTS.—Extensive operations are under way at the chief port of Tonkin in the way of dredging and reclamation with a view to making the harbor available to the largest commercial liners and in view of the importance of that point as a railway terminus. The *Siam Free Press* states that in addition it is the purpose of the authorities to establish a graving dock there.

PINANG WATERWORKS.—At a recent meeting of the municipal commission, the city engineer reported progress on the waterworks and was authorized to engage an assistant to aid in this special work which involved the construction of the balancing reservoir, settling tanks and the redistribution of the water mains. This work will take between two to three years to complete and will cost over a million.

DREDGING THE GRAND CANAL.—The expenditure of Tls. 250,000 by the provinces of Kiangsu and Shantung for the dredging of the canal for a distance of 650 Li has been authorized by the authorities at Peking, and work will commence at once. According to the *China Critic*, this work will extend from Chingkiangpo to Techow and when completed will facilitate the operations of steamers from Tientsin via Techow to Northern Kiangsu and promote the better transportation of mails.

AUCKLAND SEWERAGE SCHEME.—Plans for a comprehensive sewer system for the city of Auckland, N. Z., to cost in the vicinity of £450,000 and to provide for a population of 250,000 or about three times the present population have been completed. The scheme provides for a main outfall sewer to discharge the sewage into the sea at Okahu Point. Reinforced concrete tanks are recommended according to the *Australian Hardware Journal* for the reason that concrete is the cheapest material available.

TASMANIA'S WATER SUPPLY.—The annual report of the chief health officer of Tasmania contains the interesting information that in the dry regions of Southern Tasmania the rainfall is carefully collected and guarded from infection by means of areas sufficiently large to meet the requirements, covered with galvanized iron in a sloping position which catch the rain and feed the tanks provided for its reception. Each inch of rainfall on a surface of one square yard provides 3.75 gallons of water after allowing for evaporation.

IRRIGATION IN MYSORE.—The Mysore government has drafted a scheme which will involve the expenditure of £1,000,000 and when completed will provide sufficient water for the irrigation of the greater part of the state and have some to spare for the city of Madras. The scheme involves the construction of a reservoir at Seringapatam with a capacity of twenty billion cubic feet of water. In view of the success of the Cauvery Power Scheme, the *Indian Textile Journal* believes that this project presents no financial obstacles to the Mysore government.

HONGKONG NAVAL YARD.—The British Naval estimates for 1908 as regards Hongkong are referred to in an explanatory note by the First Lord of the Admiralty under the head of New Works to the effect that the contract for the erection of the new storehouse has been let and work on foundations progressing. Contracts have been let for the steel work of the electrical shops and the work of erection is under way. The new torpedo range is announced as practically finished. It is also announced that the whole of the dockyard extension work is expected to be completed during the fiscal year 1908-09.

YOKOHAMA RECLAMATION.—After two years' work, most of the reclamation is complete, the piers for ships' berths are established; a customs warehouse built and the foundation for the reconstruction of the damaged breakwater laid. In all it was proposed to spend yen 9,954,000. Of this the sum of yen 2,453,000 was expended last year and approximately yen 1,000,000 will be spent this year. Several cranes are to be installed and part of the railway connecting the harbor with the depots in the city will be built this year. Present estimates place the date of the completion of the work about 1912, says the *Japan Mail*.

LIAO RIVER BRIDGE.—The recent heavy floods greatly endangered the new steel bridge in the course of erection between Kaopantzu and Hsinmintun on the line of the Imperial Railways of North China to replace the temporary wooden structure at that point and it was saved only by the vigilance of the engineers in charge. This bridge when completed will be 2,000 feet in length with spans of 100 feet, each. It rests on concrete pillars built on the rock foundation of the river bed. The caissons on the Eastern side had to be sunk to a depth of 60 and 70 feet. The Shanhaikwan correspondent of the *Peking and Tientsin Times* states that Resident Engineer Leitch, who is in charge of construction expects to finish the bridge by the end of the present year.

MADRAS HARBOR IMPROVEMENT.—The purpose of the harbor board is to deepen the greater part of the harbor to 30 feet at low water and to extend the facilities at an outlay of 1,500,000 rupees in the following works:

Reveting and raiding the whole of the remainine foreshore, rupees 172,000; permanent way to completg the equipment of the port, rupees 75,000; remaining hydraulic equipment of all sorts, rupees 382,000; shed for nonsuitable imports, rupees 213,000; pier for nonsuitable imports, rupees 118,000; pier for bar iron landings, rupees 102,000; coal arrangements on the North arm for wagon loading, rupees 51,000; pier for beach-stored coal, rupees 152,000; ship wharves on the South arm, rupees 110,000; second pier for dutiable imports, rupees 125,000.

HONGKONG TYPHOON SHELTER.—The expenditure of $70,000 for deepening the area and increasing the accommodation of the Causeway Bay Shelter has been authorized as a temporary measure pending the construction of a breakwater at Mongkoktsui to enclose 66 acres, recommended constructed by the public works committee. The secretary of state for the colonies has been asked to defray half the expense and the Governor has proposed a temporary increase of Light Dues on ocean going steamers to 2.5 cents a ton and river steamers to .83 cents a ton for each entry by day or by night and that this provision be inforced until the amount of increased dues collected shall amount to one-half of the cost of the entire work. The subject matter was submitted to the committee of the Hongkong Chamber of Commerce and discussed by that body. According to the *Hongkong Telegraph* the members of the committee were of the opinion that the amount proposed expended was excessive.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

KOREAN PORT OPENED.—The port of Chungchin, Puryong-kun, was opened to foreign trade April 1st.

CANTON FISHING COMPANY.—This organization which is engaged in extensive deep sea fishing intends to extend its operations to Swatow.

RAPID TRANSIT.—The steamship Minnesota made her last voyage across the Pacific in two days less than her schedule and carried a shipment of silk on a record of 20 days to New York.

SIDE WHEEL FERRY BOATS FOR CANTON-HANKOW RAILWAY.—Bids have been invited for the construction of two vessels, each capable of accommodating from 1,600 to 2,000 passengers.

FLOATING FISH HATCHERY.—The Australian government is considering the advisability of establishing a floating hatchery for the breeding of fish so that it may be towed from place to place.

U. S. LAUNCH WHEELER DELIVERED.—The third steam launch ordered by the U. S. Quartermaster's Department and constructed by the Hongkong Whampoa Dock Co. has been delivered.

BRITISH TRAWLER FOR JAPAN.—The first British trawler sold to the Japanese sailed under its own steam from Swansea docks the latter part of February and is due at Nagasaki the latter part of May.

SHANGHAI-TARIEN LINE.—The Osaka Shosen Kaisha and the Japan-China are arranging for the establishment of a service between these two points and expect eventually to include Hongkong, Canton and Swatow as ports of call.

MARINE STEAM TURBINE.—The new U. S. scout cruiser Chester recently launched is equipped with the Parsons marine steam turbine and on its trial trip made 26.52 knots or 2.5 knots over contract speed. This is the fastest vessel in the U. S. Navy.

OSAKA SHOSEN KAISHA.—This company has ordered five steamers of from 2,500 to 3,000 tons each for the Korean coasting service, one of which will be completed shortly. The company is now considering the construction of six new steamers of 6,000 tons each and of specially high speed.

JAPANESE DISPATCH BOAT MOGAMI.—This warship, the first built at Nagasaki, was successfully launched last month. Her dimensions are as follows:

Length, 300 ft.; breadth 31 ft. 6 inches; depth 18 ft.; displacement, 1,550 tons.; actual horse power, 8,000; engine, Parson's triple steam turbine.

CHINESE STEAMSHIP CO.—Bids for the construction of a dozen river steamers suitable for transportation purposes on the Usuri, Heilung and Sungari rivers in Manchuria have been invited. The necessary funds for financiering this enterprise will be raised from customs revenue collected in Northern Manchuria.

FORMOSAN STEAMSHIP SUBSIDY.—The Formosan government has authorized a subsidy of yen 800,000 to the Osaka Shosen Kaisha and the Nippon Yusen Kaisha for the current year. Of this amount yen 80,000 is provided for the Sakura Maru, one of the volunteer fleet which will begin its service next December and agrees to make three trips between Formosa and Japan every month as a passenger boat.

NEW BANGKOK STEAMSHIP CO.—The capital of this company has been oversubscribed and it is not improbable that the promoters will decide to increase the capital to meet the wishes of the applicants. Six steamers will be chartered, and in the meantime tenders will be invited for new ships. This company will extend its operations from the proposed line to Singapore to include Hongkong and China ports.

NIPPON YUSEN KAISHA.—The Chamber of Commerce Journal of Yokohama in reviewing the Japanese merchant marine states that since April, 1906, the N. Y. K. has increased its fleet by 80 newly constructed vessels representing a tonnage of 269,727, besides the addition of 11 chartered steamers with a tonnage of 45,146. This shows an increase from 75 vessels, tonnage 253,935 in 1906, to 169 vessels, tonnage 566,808, in March 1908. This will be increased in a short time to 618,000 tons.

EXTENSION OF CHINESE MERCHANT MARINE.—The report by the deputies of the various districts of North China on the most feasible method of extending the facilities for navigation and water transportation has been received by the Board of Posts and Communications and among the recommendations made it is proposed to raise Tls. 20,000,000 through the National Communications Bank to inaugurate and operate the following lines:

One connecting Shanghai and the Pacific slope via Japan; a line from Chefoo to Japan; a line from Port Arthur to Japan via Yankow and a line connecting Amoy, Penang, Manila and Formosa. The last two lines will probably be inaugurated first.

MINES, MINERALS, AND THE METAL TRADE

GOLD IN JAVA.—In the province of Malany, a remarkable discovery of rich gold quartz is reported.

SHANTUNG MINING CO. INCREASES CAPITAL.—Advices from Berlin announce the increase of the capital of this company by 1,500,000 marks.

RANGOON OIL CO.—The shareholders of this company held an extraordinary meeting April 4th for the purpose of increasing the capital to thirteen lakhs.

BANYUMAS MINERAL SPRINGS.—A company with a capital of 50,000 guilders has been formed to develop the recently discovered springs in Java. The plant will soon be opened.

LODE MINE PURCHASE.—Mr. J. M. Wilson, the owner of the mining property adjacent to the Chendai, is reported to have sold out to a large Penang syndicate, says the *Times of Malaya*.

BURMA OIL COMPANY CONSTRUCTION.—The construction of the pipe line from the Yenangyat and Yenangyaung oil fields to Rangoon is well under way. The fields referred to are situated in Upper Burma.

AKITA MINING SCHOOL.—The sum of yen 350,000 has been made up by contributions from the leading mining companies in Japan for the establishment of a school of mines and over 60 pupils have already been enrolled.

CHILARIHO GOLD MINE.—Discouraging reports have been received at Peking from the viceroy to the effect that the initial development work at this mine had failed in results. An investigation has been ordered.

THE IWAKI COLLIERY.—This company which suffered severely from the floods last year is again running at full capacity and is turning out 60,000 tons a month. The new headquarters at Kyobashi have been completed.

ANGLO-JAPANESE STEEL WORKS.—The loan contract by which Messrs. Armstrong & Co. and the Vickers-Maxim Co. have agreed to advance yen 10,000,000 to this company organized at Hokaido, has been signed. The rate of interest is 6%.

KUANTAN MINING DISTRICT.—An inspector of mines will be stationed in this district in view of the development of the deposits there and according to the *Malay Mail*, Mr. Mungo Park, a well known mining engineer has been selected for the position.

BORNEO COAL.—The announcement is made by the Cowie Harbor Coal Co. that the railway to the Silimpopan mines will be finished and in first class order by July when the company's lighters will be loaded directly from the mines. The output at present is about 65 tons a day and increasing.

KINTA ASSOCIATION DEVELOPMENT.—It is expected, says the *Perak Pioneer*, that the hydraulic machinery will be in working order within six months on the Tanjong Ara Mine, Tanjong Rambutan. The excavation is twenty feet in depth over a surface of 170 feet square.

OIL GUSHER IN FORMOSA.—At Byoritsu, North Formosa, the South and North Oil Co. struck a remarkable gusher at 918 feet which threw a column of oil about 24 feet high. According to the correspondent of the *South China Morning Post*, the quality of the oil is of the best.

STANDARD OIL INSTALLATIONS.—This company has let the contract to Messrs. W. S. Bailey & Co. of Hongkong for the erection of an additional steel tank at Laichikok. This firm installed the former tanks at this point as well as at Haiphong and Saigon for the same company.

MANCHURIA MINING BUREAUS.—The viceroy is greatly interested in the development of the mineral deposits of Manchuria and has established offices at Mukden, Kirin, and Tsitsihar for the purpose of investigating and exploring the mineral zones, especially in the Three Eastern Provinces. The *China Critic* states that an effort will be made to develop the deposits with Chinese funds.

SHANTUNG MINING.—The provisions of the Tientsin-Pukow Railway loan agreement have been interpreted at Peking to provide for the exclusion of foreign capital in the development of the mineral deposits found along the route of the line. German capital has been discouraged by the authorities and the announcement is made that these deposits will be opened up by Chinese capital.

FINANCIAL AND MISCELLANEOUS

YOKOHAMA ICE STORAGE CO.—This organization has decided to open a branch factory at Negishi.

SANDAKAN ICE CO.—This company recently began operations and fixed the price of ice at three cents a pound for the present.

CANTON PAPER FACTORY.—It is proposed to reduce the export tax on manufactured paper in order to encourage this industry.

UNIVERSITY AT HANOI.—A movement is on foot in France to establish a university at Hanoi for the benefit of the Chinese.

JAPANESE SILK FAILURES.—The Noguchi silk firm of Kyoto with a capital of yen 200,000 has failed and the *Japan Mail* predicts a number of failures along the same line

RUBBER EXHIBITION.—The Netherlands Government has appointed a commission to represent the colonies at the London Exhibition and a large display of the product will be made.

LARGE FLOUR ORDER.—The Russian government placed an order with the Portland Flour Mills Co. for 50,000 barrels of flour to be delivered at Vladivostok. The first shipment was made March 15.

FORMOSAN CAMPHOR MONOPOLY.—The Financial Office took over the Camphor Monopoly last month, the contract giving control of this business to Messrs. Samuel, Samuel & Co. having expired March 31st.

JAPAN-CHINA COTTON MILLING CO.—This company's new factory having a capacity of 5,000 spindles is complete and will commence operations this month. The motor power is to be provided by a Curtis steam turbine.

JAPANESE COTTON SPINNERS' UNION.—The proposition of the Japanese Cotton Yarn Guild of Shanghai made to the Union to reduce the output by one-half will be discussed at a meeting of the spinners at Osaka this month.

ILI CRAPE FACTORY.—The necessary capital for the establishment of the proposed crape factory at Ili has been subscribed by the businessmen of Peking and Tientsin and Tls. 200,000 have been paid in. The capital of the company is Tls. 500,000.

INDO CHINA BUDGET.—The following sums have been approved:
General budget of Indo-China, $32,805,000; local budget of Tonking, $5,893,000; Annam, $2,915,000; Cambodia $2,582,000; Laos, $1,018,000.

JAPANESE SUGAR TRUST.—The combination of the three sugar refining companies of Japan is reported to be under way and announces its purpose to control the production and eliminate competition. The claim is made that the present production of five million piculs is 600,000 piculs over the demand.

FORMOSAN SUGAR YIELD.—It is estimated that the crop this season will not yield over 1,000,000 piculs. The correspondent of the *South China Morning Post* writes that in addition to the several mills being installed, one with a capacity of from 100 to 150 tons will shortly be installed in Gilan province.

INDIAN SUGAR AND COTTON.—Official forecasts of the Commercial Intelligence Department place the yield of unrefined sugarcane sugar for the year at 1,897,000 tons, a decrease of 14% compared with last year while the forecast for cotton yield places the estimate at 3,056,000 bales against 4,945,700 last year.

SUMATRA LUMBERING INDUSTRY.—The Netherlands government will introduce the use of steam winches and cables for snaking the teak logs out of the forest to the main roads or railways. This decision is based on the report of H. J. Herbert, expert, who investigated the methods employed by the lumbermen of the Philippines.

JAPAN'S FOREIGN TRADE.—The total for 1907 was yen 926,880,219 of which amount commerce with America is represented by Yen 211,000,000, Great Britain, Yen 138,000,000; Asia, Yen 391,800,000. The total imports were Yen 494,467,346 and the exports yen 432,412,873. The increase in foreign trade for the year compared with the preceding term was Yen 84,340,981, or about 10%.

NATIONAL BANK OF CHINA.—The increased capital to make up Tls. 10,000,000 is reported to have been fully subscribed and a meeting of the shareholders was called for the first week of May to discuss matters of administration and the issuing of bank notes for the central government for general circulation. This organization, says the *China Critic*, was formerly called the Bank of the Board of Finance and the business for 1907 was highly satisfactory.

HONGKONG REGISTERED COMPANIES.—According to the report of the Supreme Court of Hongkong the total number of companies registered since 1865, the date of the promulgation of the Companies Ordinance to the end of 1907, was 530, representing an aggregate capital of $245,155,803.00. Of the 530 companies on the register, 94 are defunct, 2 were not floated; 120 were wound up and 52 were in the course of liquidation leaving 262 on the register at the end of the year and representing a capital of $163,434,528.00. There were 29 companies registered in 1907.

HONGKONG SUPREME COURT REPORT.—In the Division of Original Jurisdiction there were 261 cases filed during the year 1907; 162 pending at the commencement of the term; 143 disposed of; 39 settled or withdrawn and 280 undisposed of. The total amount involved was $3,275,203.27. In the Probate and Administration Division there were 174 grants made by the court including Probates 82, and Letters of Administration, 92. The aggregate value of the estates amounted to $12,675,740.00. Forty-two estates were administered during the year representing a value of $24,560.78 and 22 estates were wound up as against 39 in 1906, value $20,977.40. The total amount of Official Trusts in the hands of the Trustee at the end of the year was $116,-215.47 and represented 27 trust estates.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

Article	U. S. Currency.
ABRASIVES.—	
Bort, good drill quality ......carat....	$ 85 00
Carborundum, grains ......lb....	.10-.17
Corundum ......"….	.07-.10
Emery, grain ......"….	.035-.045
Pumice Stone, American powdered ......100 lbs....	1 60-2 00
ACIDS —	
Hydrochloric 20° ......lb....	1.25-1.50
Nitric, 38° ......"….	4.25-4.625
Sulphuric, 66° bulk ......ton....	18.00
Aluminum, Sulphate Com'l ......lb....	1.25-1.75
Antimony, needle ......"….	.05-.065
Arsenic, white ......"….	045-.05
ASPHALTUM.—	
Trinidad ......ton....	28.00-30.00
California ......"….	51.00-27.00
Bleaching powder, 35% ......100 lb....	1.25-1.40
Blue Vitriol ......"….	5.50
Bone Ash ......lb....	.02¾-.04
Borax ......"….	.045-.0525
*Caps detonating ......M....	7 50
CEMENT.—	
Portland, American ......500 lbs. bbl....	1.55-1.60
Foreign ...... " "	2.25-2.90
Rosendale ......300 " "	.85
*Green Island ......375 " "	2.65
*Alsen	2.75
*Dromedary	2.50
*Rizal	2.50
*Independencia	2.50
CLAY, CHINA.—	
American common ......lg. ton....	8 50-9 00
Foreign ......"….	10.00-17.50
COALS.—	
*Japanese	5 25
*Australian	5 50
Copper ......lb....	.16½-.16¾
Dynamite 40% ......"….	.20
Redspar ground best ......sh. ton....	14 00
Cork, S. American ......M....	30.00-40 00
imported ......"….	30.00-45.00
Fire clay, St. Louis Mill ......ton....	2 50
*Fuse-Blasting ......1,000 ft....	7 50
Graphite-American ore, common ......lb....	.01-10
Artificial ......lb....	.06
Gypsum-Fertilizer ......sh. ton....	7 00
Powdered ......sh. ton....	12 to-20
Lead ......lb....	.03½-.04½
Magnesite-Greece, crude, 95% ......lg. ton..	8.00-10 00
Bricks, domes ......per M....	160-200
Manganese, pure, 98-99% ......lb....	.06
Ore, 80-85% ......sh. ton....	20.00 to 50.00
Mercury, export flask ......75 lbs....	36 00 39.00
PAINTS AND COLORS.—	
Litharge American P'w'd ......lb....	.06½-.06¾
Ochre, Am. Com ......sh. ton....	8.50-9.00
Paris green, pure, bulk ......lb....	26
Turpentine, spirits, bbl ......gal....	.41½-45
White lead, Am. dry ......lb....	.05¾-.06
Am. in Oil ......"….	.06½-.06¾
Zinc, white, Am. extra dry ......"….	.05⅞-.05⅞
Phosphates, Acid ......per unit....	65-.70
Florida hard rock ......lg. ton....	10.25-10 50
Land pebble 68% ......"	5 25-5 50
Potassium Cyanide (98-99% ......lb....	18-19
Platinum ......oz....	27 00-29 50
Platinum, Scrap ......oz....	20 00-21 00
Spelter ......lb....	053-.055
Nickel ......lb....	.045-.06¼
Cobalt unrefined ......"….	.20-.45
*Powder, black blasting A ......lb....	.1⅛
*Judson ......"	180
Pyrite, Domestic Non-arsenical, lump ......unit....	.11-.11½
Imported non-arsenical lump ......"	.13-.13½
Imported, arsenical ......"	12-13
Saltpeter crude ......100 lbs....	4 50-5 00
Silica, Lump quartz ......lg. ton....	5 00-6 00
Ground quartz, ordinary ......"	13 00-15 00
Glass sand, ordinary ......"	2 75
Silver ......oz....	.61⅛
Sodium cyanide (100% KCN) ......lb....	.18-.19
*Steel, octagon drill ......lb....	.14
Sulphur, Louisiana prime ......lg. ton....	22 00
Roll ......100 lbs....	1.85-2.15
Flowers sublimed ......"	2.20-2.60
Talc—Domestic ......sh. ton....	15 00-25.00
Italian, best ......"	35 00-40.00
Tin ......lb....	.42
Zinc, ..."….	.15
Dust ......"….	.05-.06⅞

*Manila quotation.

HEMP STATISTICS, 1st MAY, 1908.

(Courtesy of C. S. NICHOLSON, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 30th April 1908		238,437 *Bales.*
Arrivals of hemp at Cebu up 30th April 1908		88,711 *Bales.*
		327,148 *Bales.*
Stocks on hand in Manila and Cebu on 1st January, 1908		129,359 *Bales.*
TOTAL		456,507 *Bales.*
Export to all ports to date 30-4-08	326,350 *Bales.*	
Local consumption estimated at	1,600 "	327,950 *Bales.*
Total stocks at Manila and Cebu on 1st May, 1908		128,557 *Bales.*

EXPORT OF HEMP, APRIL, 1908.

Date	Vessel	London	L'pool	Atlantic U. S.	Pacific East California	Continent.	Australia	Other Pts.	Bales
Apr.	Fwd:—	70,481	31,730	72,755	9,607	18,169	4,165	11,893	218,800
" 1	Friederike	23,685	......	......	......	......	......	......	23,685
" 4	Rubi	850	......	......	......	100	......	650	1,600
" "	Loongsang	150	......	......	......	100	......	50	300
" 8	Palma	2,152	4,690	......	......	975	......	......	7,817
" 10	Zafiro	......	......	......	......	150	......	400	550
" "	Kumano Maru	......	......	......	......	......	......	605	605
" 11	Yuensang	......	......	......	......	......	......	100	100
" "	Titan	......	......	......	4,800	......	......	......	4,800
" 13	Isla de Luzon	......	500	......	......	25	......	......	525
" 14	Tean	......	1,700	......	......	......	......	150	1,850
" 17	Wray Castle	......	......	10,606	......	......	......	......	10,606
" 19	Rubi	......	......	......	......	......	......	334	334
" "	Loongsang	550	......	......	......	......	......	......	550
" "	Inverclyde	......	......	6,683	......	......	......	......	6,683
" 20	Jason ......Cebu.	5,038	1,875	......	......	675	......	......	7,588
" "	Nikko Maru	......	......	......	......	......	1,539	......	1,539
" 24	Changsha	......	......	......	......	......	90	......	90
" 25	Zafiro	50	......	......	......	......	......	400	450
" "	Yuensang	18	......	......	......	......	......	15	33
" 27	Seneca ......Cebu.	......	......	12,768	......	......	......	......	12,768
" 28	Prinz Waldemar ..	......	......	......	......	......	......	281	281
" "	Eastern	......	......	......	......	......	......	224	224
" "	Kaifong ......Cebu.	......	50	......	......	......	......	......	50
" "	Jason	14,721	5,971	......	......	1,905	......	......	22,597
" 29	Tean	1,650	......	......	......	275	......	......	1,925
		119,345	46,516	102,812	14,407	22,374	5.794	15,102	326,350

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, for April, 1908.

STOCK.	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	*g* £1,500,000 *s* $13,500,000 *i* $250,000	$2,000,387	31-12-07	Final of £2 on old and £1-10/- on new shares for ½ year ending 31-12-07	5¼	$690 £73-10
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	*c* £12,735 $300,000	$71,293	31-12-06	$2 (London 3/6) for 1903	....	$51
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 *j* $219,058 *u* $401,959	Nil.	31-12-06	$20 for 1906	8½	$240
North China Insurance Co., Ld.	1963	£150,000	10,000	£15	£5	*g* £125,000 *s* Tls. 100,000 *f* Tls. 48,942	Tls. 204,424	30-6-07	Final of 7/6, per share making in all 15/- for 1906 (Tls. 2.65)	6	Tls. 81 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	*s* $3,000,000 *g* £90,000 *f* $456,407 *j* £125,137.15 *u* $434,434	$2,506,001	31-12-07	Final of $15 making $45 for 1906, and interim of $30 for account 1907	5½	$797 ex div.
Yangtsze Ins. Association, Ld. do. do. (new)	1862 1907	$1,040,000	8,000 4,000	$100 $100	$60 $60	$850,000 *j* $159,143 $1,988	$394,520	31-12-06	$12 for year ending 31. 12. 05	....	$165 $150
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 *x* $346,097 *f* $13,802	$372,432	31-12-07	$6 and bonus $2 for 1906	9	$90 sa. & b.
Hongkong Fire Ins. Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,323,941	$428,047	31-12-07	$27 for 1906	9	$310 sales
SHIPPING.											
China & Manila Steamship Co., Ld	1882	$750,000	1) 30,000	$25	$25	$7,000	$1.035	31-12-07	$1 for 1906	....	$16
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 *s* $96,988	Nil.	30-6-07	$4 for year ended 30-6-07	10	$40
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	*e* $250,000 *d. i.* $575,000 *f* $ 75,279 $ 20,000	$16,437	31-12-07	$1¼ for 2nd half year making in all $2¼ for year ending 31-12-07	8	$29 buyers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	*m* £600,000	2) 60,000 2) 60,000	£5	£5	£60,000 *i* £270,000	£3,694	31-12-06	5/- @ ex. 2-2¼ = $2.24 per share for 1906	3¾	$35 $24
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-07	Final of Tls. 1¾ making Tls. 3½ for 1907	7¾ 7¾	Tls. 45 buyers Tls. 49½ buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£400,000 *s* £1871	£172,370	31-12-06	Second Interim of 1/- (Coupon No. 9) for a/c 1907	4½	45/
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 *i* $32,957	$137	30-4-07	$1.00 50 cts. for year ended 30-4-07	3½ 3½	$32 $18
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 *d* Tls. 419,479 *e* Tls. 82,000 *i* Tls. 81,200 *q* Tls. 30,000	Tls. 18,730	31-12-06	Final of Tls. 2 making Tls. 6 for 1906	12½	Tls. 47 buyers
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	*o* $345,741 *e* $450,000 *r* $ 56,848	*Dr.* $279,371	31-12-07	$8 for year ending 31-12-06	....	$135
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	*Dr.* $135,132	31-12-07	$3 for 1897	....	$15 sales
Perak Sugar Cultivation Co., Ld.	....	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 8,935	31-8-06	Tls. 4. (8%) for year ending 31-8-06	5½	Tls. 70 sellers
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	*d* £150,000 *h* £84,390	£11,556	28-2-07	Final of 1/6 - Making 3/- for 1907 (Coupon No. 9)	7¾	Tls. 16.20 buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	*Dr.* £11,358	31-3-07	No. 12 of 1/- = 48 cents	....	$8½
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	*s* 18,000	$25	$25	$53,601	$3,726	31-12-07	$1¾ for year ending 31-12-06	....	$14
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000,000	60,000	$50	$50	$550,000 *t* $26,806 *s* $40,000	$3,556	31-12-07	Final of $1½ making $3½ for 1907	6½	$53
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500 000	50,000	$50	$50	*v* $50,000 $100,000	$441,442	31-12-07	Final of $4 making $8 for 1907	7¾	$103
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100		Tls. 10,459	30-4-07	Int. of Tls. 2½ for 6 months ending 31-10-1907	7½	Tls. 81 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	14) 36,000	Tls. 100	Tls. 100	Tls. 1,000,000 *b* Tls. 697,257 *r* Tls. 75,000 *e* Tls. 125,000	Tls. 22,626	31-12-07	Final of Tls. 9 making Tls. 17 for 1907	7½	Tls. 224 buyers
LANDS, HOTELS AND BUILDINGS											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 6,531	29-2-08	Tls. 6 for year ending 29-2-08	6	Tls. 100
Astor House Hotel Co., Ld.	1901	$750 000	4) 30,000	$25	$25	$30,000	$10,908	30-6-07	$2½ for year ending 30-6-07	10	$21 buyers
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 *e* Tls. 10,000	Tls. 1,013	28-2-06	20 per cent. for 1906	....	Tls. 70 sellers
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	*n.* $1 000	$9,178	31-12-06	$1.80 for 1906	....	$10 sales
Hongkong Hotel Co., Ld.	1866	$600.000	12,000	$50	$50	$648,975 *r* $	$252,	31-12-07	$4 for 1st half-year ending 30-6-1907	7¾	$96
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50.000	$100	$100	*e* $250,000	$36,915	31-12-07	Final of $3½ making $7½ for year ending 31-12-07	7	$100 sellers.
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	*i* $217,426 *e* $50,000	$4,621	31-12-07	70 cents for 1907	7	$10 buyers

FAR EASTERN STOCKS AND QUOTATIONS—(Continued.)

STOCKS	WHEN ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	¶RESERVE	WORKING ACCOUNT	DATE	LAST DIVIDEND	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$653	31-12-07	$1¾ for 1907	6¾	$26 buyers
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523,045 e Tls. 170,000	Tls. 107,547	31-12-07	Final of Tls. 3 & bonus of Tls. 2 making in all Tls. 8 for 07.	7	Tls. 115 sellers
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 71,685	Tls. 811	31-12-07	Final of Tls. 3 making Tls. 6 for 1907	6¼	Tls. 96 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,541	31-12-07	Final of $2.10 making in all $4.10 for year endg. 31-12-07	8½	$48 sales & b.
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 23,276	Tls. 8,807	31-10-07	Tls. 2½ for year ended 31-10-07	4½	Tls. 56 buyers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $60,000	$14,269	31-7-07	50 cents for year ending 31-7-07	4½	$10½
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 150,000	Tls. 85,519	30-9-07	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 55 sellers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 6,308	31-12-07	Tls. 8 for 1906	....	Tls. 75
Soy Chee Cotton Spinning Co., Ld.	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 28,257	Tls. 50,663	31-12-06	Tls. 50 for 1906	....	Tls. 260 sellers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12-6	12/6	£1,299	£638	31-12-06	1s. 3d. for 1906	9	$ 7½
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$25,000	Nil.	31-12-07	$1.20 for 1907	11	$11
China Light & Power Co., Ld. Do. do. Special Shares	1901 1907	$550,000	50,000 17) 50,000	$10 $1	$10 $1	none	$25,000	28-2-07	60 cents for year ending 28-2-06	....	$6
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$120,000	$3,593	31-12-07	80 cents for 1907	9	$9 sales
Dairy Farm Co., Ld.	1896	$187,500	25,000	$7½	$6	i $60,000 $5,000	$2,974	31-7-07	$1.30 for year ending 31-7-07	6½	$20
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$11,000	$10,804	31-12-06	Interim div. of 50 cents per share for % 1907	11	$11½
Hall & Holtz, Ld.	....	$420,000	21,000	$20	$20	$186,000	$15,002	28-2-07	$2½ for year ending 28-2-07	9½	$23
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	none	$2,953	28-2-07	$1.00 for year ending 28-2-07	6¼	$16 buyers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $120,000	$4,378	31-12-07	Final of $15 making in all $19 for 1907	8½	$225 sales
Hongkong Rope Manufacturing Co., Ld.	1883	$500,000	50,000	$10	$10	$100,000	$8,191	31-12-07	Final of $1.20 making in all $2 for 1907	6¾	$30
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 i Tls. 27,603	Tls. 17,127	31-10-06	Interim of Tls. 10 for first quarter	7½	Tls. 460 sellers
Peak Tramways Co., Ld. Do. (New)	1907	$750,000	25,000 50,000	$10 $10	$10 $10	none	$2,655	30-4-07	$1 per share for period from 19th Oct. to 30th April, 1907	8	$13 buyers $2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	none	31-12-07	None	....	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 6,603	31-12 07	Final of Tls. 4 making Tls. 7½ for 1907	7	Tls. 107½ buyers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 u Tls. 75,000	Tls. 8,493	31-10-07	Final of Tls. 9 making in all Tls. 14 for 1907	16	Tls. 87½ sellers
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 58,332	31-12-07	Final of 37/6 making in all 52/6 for 1907	....	Tls. 360
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $41 934	28-2-06	None	....	$23 buyers
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	78	31-5-07	40 cents for year ending 30-5-07	6¾	$6 sales
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	....	Tls. 97 sellers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$111	31-12-07	50 cents for 1907	4¼	$12
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$13,000	31-5-07	80 cts. on 9,900 ord. shares & $19.80 on 100 founders' shares for year ending 31-5-07	7½	$11
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 $25,000	$5,482	31-12-06	Interim of 30 cts. for % 1907	6¾	$10 buyers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent. for year endg. 31 7 07.	....	$130 buyers
William Powell, Ld.	1901	$150,000	15,000	$10	$10	none	$41	30-6-07	Final of 30 cents making 80 cents for year ending June 30th 1906	....	$5½

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par. (Plus interest)
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡	Hongkong & Shanghai Banking Corporation.	$500,000	$500	§ all	Half yearly, June 30th and December 31st	par. (Plus interest)
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902	Hongkong & Shanghai Banking Corporation.	Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 97 (Plus interest)
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903	Hongkong & Shanghai Banking Corporation.	Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	par. (Plus interest)
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par. (Plus interest)
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½. (Plus interest)
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repairs Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 5,725 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 198 shares unissued.
15 22,250 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government, Kuping Tls. 5,000,000.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years, or at option of Company, the Company giving 6 months notice.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 1952.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co. Ltd	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	Gold cents Sixty for year ended 30th June 1907	Dec. 1907
Wei-hai-wei Gold Mining Co. Limited	$1 nominal		$700,000	35,000	$20	$20	—	None	—
Kiang pei-ting Coal & Iron Mine Co. Ltd	Tls. 50		Tls. 500.000	5,000	Tls. 100	Tls. 50	—	First year	—
Vulcan Iron Works, Limited	Tls. 400		T.s. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06	Nov. 1, 1906
Yangtsze Wharf & Godown Co. Limited	Tls. 208 sales		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 18 for 1907	April 16, 1908
Wei-hai-wei Land & Building Co. Limited	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co. Limited	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year	—
Grand Hotel, Limited	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year	Dec. 31, 1907
Hotel des Colonies Company, Limited	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	Final of 6% making 10% for 1905	May 31, 1906
Kalee, Limited	$100 nominal		$100,000	4,000	$100	$100	—	$8 for 1906	May 22, 1907
Tsingtau Hotel Company, Ltd	nominal		$250,000	2,500	$100	$100	—	5% & 2% bonus for 1905	May 24, 1906
Anglo-German Brewing Co., Limited	$85 buyers		$100,000	4.000	$100	$100	none	$7 for 1907	Mar. 12, 1908
Butler Tile Works, Limited	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07	May 29, 1907
Major Bros, Limited	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	–
Oriental Ice Company, Limited	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year	—
Scharffs Oil and Bone Mills, Ltd	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year	—
Shanghai Ice Company, Limited	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907	Mar. 14, 1908
Shanghai Oil Co., Limited	Tls. 25		Tls 175,000	7,000	Tls. 25	Tls. 25	—	First year	—
Campbell, Moore & Co., Limited	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905	Apr. 2, 1906
Dunning & Company, Limited	$50 sellers		$100,000	2.000	$50	$50	—	$5 year ending 28.2.08	Apr. 15, 1908
J. Llewellyn & Co, Limited	$50 buyers		$72,000	1,200	$60	$60	—	$6 for 1906	May 16, 1907
Lane, Crawford & Company	$137½ sales	137½	$250,000	2,500	$100	$100	—	Interim of 5% for 1907	Nov. 18, 1907
Mondon (E. L.) Limited	Tls. 6 buyers		Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited	$40 buyers		$250,000	5,000	$50	$50	—	—	—
Weeks & Company, Limited	$22 buyers		$400,000	20,000	$20	$20	$20,000	Interim of 80 cents for year 1.3.07 to 28.2.08	Dec. 11, 1907
Dominion Rubber Co., Limited	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year	—
Kalumpong Rubber Co, Ltd	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	—	—
Senawang Rubber Estates Company, Limited	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited	Tls. 10 nominal		Tls. 300,000	30.000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	4% for half year ended 31 Oct. 1907	Dec. 17, 1907
Shanghai Mutual Telephone Co., Limited	Tls. 53½ buyers	53½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 4 for 1906	—
China Export Import & Lumber Company, Limited	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 20.2.07	Mar. 28, 1907
China Printing Co, Limited	Tls. 50		Tls. 750.000	1,500	Tls. 50	Tls. 50	—	80 cents for 1907	Jan. 30, 1908
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 56	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 07	Nov. 21, 1907
E. E. Porter & Co., Limited	$50		$100,000	2,000	$50	$50	—	—	—
Shanghai Electric & Asbestos Company, Limited	$23 sales		$125,000	5,000	$25	$25	—	Interim of 4% for 1907	Jan. 15, 9081
Shanghai Electric Construction Company, Limited	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year	—

DEBENTURES

LOANS		PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures	1892	Tls. 87	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do	1893	,, 92	,, 125,000	" 47,300	" 100	5½ ,,	Do
do	1894	,, 100	,, 105,000	" 60 000	" 100	6 ,,	Do
do	1895	,, 87	,, 115,000	" 110,9 0	" 100	5 ,,	Do
do	1896	,, 87	,, 140,000	" 135,700	" 100	5 ,,	Do
do	1897	,, 87	,, 268,800	" 268,400	" 100	5 ,,	Do
do	1898	,, 100	,, 300.000	" 60,000	" 100	6 ,,	Do
do	1900	,, 92	,, 33,900	" 31,700	" 100	5½ ,,	Do
do	1901	,, 100	,, 250 000	" 200,000	" 100	6 ,,	Do
do	1902	,, 100	,, 150,000	" 150,000	" 100	6 ,,	Do
do	1903	,, 100	,, 490 500	" 490.500	" 100	6 ,,	Do
do	1904	,, 100	,, 214,500	" 214.500	" 100	6 ,,	Do
do	1905	,, 100	,, 320 000	" 320,000	" 100	6 ,,	Do
Chinese Imperial Government Loan	1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept.
Shanghai Land Investment Co. Debentures	1890	,, 99	,, 250,000	" 250,000	" 100	6 ,,	May. & Nov.
do	1892	,, 92	,, 250,000	" 250.000	" 100	5½ ,,	June & Dec.
do	1894	,, 99	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 87	,, 250,000	" 250,000	" 100	5 ,,	June & Dec.
do	1900	,, 99	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do	1901	,, 99	,, 250.000	" 250,000	" 100	6 ,,	June & Dec.
do	1901	,, 92	,, 100.000	" 100,000	" 100	5 ,,	May & Nov.
do	1902	,, 99	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do	1905	,, 99	,, 250.000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co. Debentures	1894	,, 99	,, 100.000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1896	,, 87	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do	1899	,, 99	,, 50,000	" 50,000	" 100	6 ,,	Do
do	1900	,, 99	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do	1902	,, 99	,, 100.000	" 100,000	" 100	6 ,,	Do
do	1903	,, 99	,, 100.000	" 100 000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co. Debentures	1902	,, 100	,, 200,000	" 200 000	" 100	7 ,,	April & Oct.
Shanghai Gas Co. Debentures	1897	,, 87	,, 100,000	" 100,000	" 100	5 ,,	Do
do	1899	,, 99	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do	1900	,, 99	,, 2,000 000	" 200,000	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co. Debentures	1902	,, 99	,, 799.800	" 799,800	" 100	6 ,,	Do
Astor House Co. Debentures		,, 100	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow	1901	Sh. ,, 102½	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures	1907	,, 96	Tls. 170 000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures		,, 97	,, 139,000	" 139.000	" 100	6 ,,	Do
do	1907	,, 97	,, 92 000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co. Debentures	1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.

SINGAPORE SHARE QUOTATIONS

(COURTESY MESSRS. FRASER & CO., BROKERS, SINGAPORE, APRIL, 1908)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buyers	Sellers	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10	....	25% for year ending 31-3-07	Belat Tin Mining Co., Ltd	7.00	7.25	7.00
1907	$300,000	225,000	22,500*y*	10	10	....		Bruang Ltd	7.00	7.50	7.00
1901	$600,000	600,000	60,000	10	10	....	20% for year ending 30-4-07	Bruseh Hydraulic Tin Mining Co., Ltd	11.00	....	11.00
1903	£400,000	350,000	350,000*a*	1	1	....		Duff Development Co., Ltd	1.95	2.00	1.95
1907	$400,000	375,000	37,500*b*	10	10	....		Kanaboi, Ltd	....	4.00	4.00
1901	£60,000	60,000	60,000	1	1	....	2/- during 1907	Kinta Tin Mines, Ltd	10.75	11.00	10.75
1906	£100,000	100,000	100,000	1	1	....		Kledang Tin Mining Co., Ltd	6.00	6.25	6.00
1905	$150,000	99.000	9,900*c*	10	10	6,000	25% interim for 1907	Kuantan Tin Mining Co., Ltd	10 25	10.50	10.50
1906	£120,000	120,000	120,000	1	1	....		Lahat Mines Ltd	7.50	7.75	7.50
1906	£30.000	30,000	30,000	1	1	....		Malaya and Siam Corporation, Ltd	....	14/6	14/6
1906	$450,000	337,500	45,000	10	7.50	....		Malacca Tin Dredging Co., Ltd	....	....	7.50
1906	£250,000	179,500	600,000*h*	5/-	5/-	....		Pahang Consolidated Co., Ltd	31/3	32/-	31/3
			100,000	1	1	....		" " " 7% *Pref*	....	....	nominal.
1907	£100,000	80,000	80 000*j**	1	1	....		Pengkalen, Ltd	7.25	7.50	7.25
1904	£120,000	100,000	100,000*d*	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd	5 25	5.75	5.25
1907	$450,000	300,000	30,000*h**	10	10	....		Rahman Hydraulic Tin Mines, Ltd	9.75	10.15	10.00
1905	£27,000	21,750	21,750*e*	1	1	....	1/- interim during 1907	Rambutan, Ltd	9.00	....	9.00
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully. pd.*	6.50	6.60	6.50
			150,000	1	18/10	....	1/- " " "	" " " *Contributory*	6.50	6 60	6.50
1905	£40,000	40,000	40,000	1	1	....		Redhills Tin Mining Co., Ltd	3.50	3.75	3.50
1898	*Gs*2 500,000	2,500,000	25,000	100	100	....	71% for year ending 31-12-07	Redjang Lebong Mining Co	....	....	890.00
1900	$110,000	110,000	22,000	5	5	....	10% for 1907	Royal Johore Tin Mining Co., Ltd	0.75	1.00	0.75
1907	$500,000	500,000	50,000	10	7.50	....		Salak South, Ltd	8.25	8.50	8.25
1907	£80,000	80,000	80,000	1	1	....		Sempam Tin Mines, Ltd	....	5.00	5.00
1906	$850,000	850,000	85,000	10	10	25,000	7½% interim for 1908	Serendah Hydraulic Tin Ming. Co., Ltd	9.25	9.50	9.25
1899	$230,000	230,000	23,000	10	10	....	5% for ½ year ending 30-6-06	Sipiau Tin Co., Ltd	5.25	5.60	5.25
1907	£90,000	70,000	70,000*z*	1	1	....		Tekka, Limited	9.50	10.00	9.50
1902	£160,000	149,185	149.185*f*	1	1	....	5/- during 1907	Tronoh Mines, Ltd	13.75	14.00	14.00
1907	$60,000	60,000	600	100	100	....		Tunggal Tin, Ltd	....	20.00	20.00
								RUBBER			
1905	£150,000	116,625	46,500*g*	1	1	....	10% interim for 1907	Anglo-Malay Rub. Co., Ltd. *Fully paid*	....	....	£3 10*s*. 0*d*.
			93,500	1	15/-	....		" " " *Contributory*	....	....	£3 5*s*. 0*d*.
1905	$200,000	105,000	10,500*g**	10	10	....	12½% interim for 1907	Balgownie Rub. Estate Ltd	....	19.50	$19.50
1904	£30,000	15,250	7,000*i*	1	1	....		Batu Caves Rub. Co., Ltd. *Fully paid*	....	....	£3 0*s*. 0*d*.
			11,000	1	15/-	....		" " " *Contributory*	....	....	£2. 10*s*. 0*d*.
1903	£70,000	61,000	61,000*j*	1	1	....	10% interim for 1907	Bukit Rajah Rubber Co., Ltd	....	....	£4. 5*s*. 0*d*.
1906	$150,000	125,000	12,500*k*	10	10	....		Castlewood Rubber Co., Ltd	....	10.00	10.00
1904	£12,000	10,500	6,000	1	1	....	15% interim for 1907	Cicely Rubber Estates Co., Ltd	....	....	£4. 10*s*. 0*d*.
			6,000	1	15/-	....	15% interim for 1907	" " " " 5% *Pref*	....	....	£5 0*s*. 0*d*.
1905	£75,000	55,000	55,000*l*	1	1	....	10% for year ending 31-12-06	Consolidated Malay Rub. Estates, Ltd	....	2.10.0	£2 10*s*. 0*d*.
1906	£310,000	243,227	181,454*m*	1	1	....	5% interim for 1907	Highlands & Lowds. Para Rub. Co., Ltd	1.15.6	1.18.6	£2 18*s*. 6*d*.
			123,546	1	10/-	....		" " " " *Contributory*	1.2.6	1.5.0	£1 5*s*. 0*d*.
1906	£180,000	180,000	180,000	1	1	....	3% interim for 1907	Kuala Lumpur Rubber Co., Ltd	1.2.6	1.3.6	£1 2*s*. 6*d*.
1907	£320,000	201,500	184,000*d**	1	1	....		Lanadron Rubber Estates, Ltd	....	....	nominal
			70,000	1	5/-	....		" " " *Contributory*	....	10/6	10/6
1906	*Gs* 175,000	157,750	80	250	250	....		Langen Rub. and Cocoanut Co., Ltd	....	....	250
			460	250	212.50	....		" " " " " "	....	212.50	212.50
			160	250	250	....		" " " " " *Deferred*	....	....	250
1906	$250,000	225 000	22,500*n*	10	10	....		Ledbury Rubber Co., Ltd	....	10.00	10.00
1895	£100,000	76,100	900,000*e**	2/-	2/-	....	10% interim for 1907	Linggi Plantations Ltd., *Ordinary*	9/6	10/6	10/6
			10,000	1	1	....		" " " 7% *Pref*	....	....	£1 0*s*. 0*d*.
1906	£300,000	260,625	115,000	1	1	....	7½% for year ending 31-12-07	Malacca Rubber Plantations 7½% *Pref*	19/6	21/-	19/6
			140,000	1	1	....		" " *Ordinary*	....	10/6	10/6
			45,000	1	2/6	....		" " *Contributory*	....	....	nominal.
1903	£30,000	20,000	20,000*o*	1	1	....	35% for year ending 31-12-07	Pataling Rubber Estates Synd. Ltd	....	....	£5. 10*s*. 0*d*.
1906	$250,000	225,000	22,500*b**	10	10	....		Ragalla Rubber Co., Ltd	....	10.00	10.00
1904	£20,000	8,794	2,588*a**	1	1	....		Sagga Rubber Company Limited	....	....	£2. 10*s*. 0*d*.
			12.412	1	10/-	....		" " " "	....	....	....
1904	$100,000	99,000	990*k**	100	100	....	15% for year ending 31-1-08	Sandycroft Rubber Co., Ltd	....	275.00	$275.00
1898	£30,000	28,150	263,000	2/-	2/-	....	25% interim for 1907	Selangor Rubber Co., Ltd	....	....	14/-
			37,000	2/-	1/-	....		" " *Contributory*	....	....	nominal.
1903	$250,000	250,000	2,500	100	100	....		Singapore & Johore Rub. Co., Ltd	100.00	115.00	115.00
1905	$100,000	100,000	10,000	10	10	....	7½% for year ending 30/6/07	Sione Rubber Co., Ltd	....	13.00	13.00
1906	£100,000	93,357	73,500	1	1	....		Sungei Kapar Rubber Co., Ltd	....	....	nominal.
			26,500	1	15/	....		" " " " *Contributory*	....	....	£2 1*s*. 0*d*.
1904	£50,000	28,795	6,920*p*	1	1	....		Sungei Way (Selangor) Rub. Co., Ltd	....	....	£2. 0*s*. 0*d*,
			35,000	1	12/-6	....		" " " *Contributory*	....	1.10.0	£1. 10*s*. 0*d*.
1904	£60,000	50,000	500,000*q*	2/-	2/-	....	25% interim for 1907	Vallambrosa Rubber Co., Ltd	....	12/-	12/-
								GENERAL			
1894	£5,377.10.0	4,805	7,688*c**	12/6	12/6	1,300	10% for year ending 31-12-06	Bells Asbestos Eastern Agency, Ltd	5.00	6.50	5.00
1898	$225,000	225,000	4,500	50	50	132,500	15% & 2½% bon. for yr. end. 31-12-07.	Fraser & Neave, Ltd	132.50	135.00	132.50
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000*t* 13,500,000*u* 250,000*v*	£2-0-0 on old and £1 10*s* 0*d* on new shares for ½ year ending 31-12-07	Hongkong & Shanghai Bank'g Corpt'n	....	....	£73 10*s*. 0*d*.
1905	$2,400,000	2,400,000	18,000	100	....	75,000	7½% for year ending 31-10-07	Howarth Erskine, Ltd	130.00	142.50	142.50
			6,000	100	....	....	7% for year ending 31-10-07	" " 7% *Pref*	....	....	120.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	....	130.00
			4,000	100	100	....	8% " " " " "	" " 8% *Cum. Pref*	....	....	150.00 nominal.
1901	$34,000	34,000	3,400	10	10	....	20% for year ending 31-10-07	Maynard & Co., Ltd	19.00	20.00	20.00
1899	$875,000	875,000	6.000	100	100	175,000	5% for year ending 31/12/07	Riley, Hargreaves & Co., Ltd	102.50	105.00	102.50
			2,750	100	100	....	7% for year ending 31/12/07	" " " " 7% *Pref*	110.00	....	110.00
1903	$600,000	240,000	24,000*r*	10	10	....		Singapore Cold Storage Co., Ltd	6.25	6.50	6.25
1891	$30,000	30,000	600	50	50	20,000	10% for year ending 31-7-07	Singapore Dispensary Ltd	40.00	42.50	42.50
1903	£400,000	400,000	400,000	1	1	....		Singapore Electric Tramways, Co., Ltd.	5/6	6/-	6/-
1904	$160,000	112,000	1,120*f**	100	100	11.200	5% for year ending 30/6/07	Straits Engineering Syndicate Ltd.	....	55.00	55.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd	....	....	130.00
1890	$500,000	500,000	5,000*i**	100	100	400,000 458,925*w*	10% for year ending 31-12-07	Straits Steam Ship Co., Ltd	190.00	195.00	195.00
1904	$40,000	$35,350	2,535*s*	10	10	....		Straits Tobacco Factory, Ltd	....	2.50	2.50
			1,000	10	10	....		" " " "	....	....	nominal.
1887	$3,000,000	3,000,000	300,000	10	10	1,150,000 1,193,659*y*	10% & 5% bon. ½ yr. end. 30-9-07	Straits Trading Co., Ltd	49.25	50.00	49.25

DEBENTURES

Name	Buyers	Sellers	Closing Quotations
Howarth Erskine, Ltd. 6% .... $ 600,000	....	....	3% prem.
Riley, Hargreaves & Co., Ld. 6% . 225,000	....	3%	3% prem.
Singapore Electric Tramways, Co., Ltd. 5% 350,000	....	....	nominal
Singapore Municipal 6% 400,000	....	....	20% prem.
" " 5% 1,878,000	....	....	3% prem.
" " 4½% 1,600,000	....	5%	5% prem.
" " 4% 602,900	....	....	2% dis. nom.
Straits Engineering Synd. Ltd. 6% . 45,000	....	....	par.
Tanjong Pagar Dock Board 6% ... 250,000	....	....	3% prem.
" " " 5% .. 1,050,000	....	....	1% prem.

a 50,000 unissued
b 2,500 "
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
g 10,000 "
h 100,000 " *Ord.*; 45,500 " *Pref.*
i 12,000 "
j 9,000 "
k 2.500 "
l 20,000 "
m 5,000 unissued.
n 2,500 "
o 10,000 "
p 8.080 "
q 100,000 "
r 36,000 "
s 465 "
t Special Gold Reserve Fund
u Silver Reserve Fund.
v Insurance Fund.
w Sundry Reserves.
x Sundry Reserves.
y 7,500 unissued.
z 20,000 unissued.
*a** 5,000 "
*b** 2,500 "
*c** 916 "
*d** 66,000 "
*e** 239,000 "
*f** 480 "
*g** 9.500 "
*h** 15,000 "
*i** 44 "
*j** 20,000 "
*k** 10 "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, APRIL, 1908

STOCKS	CAPITAL.	NO. OF SHARES	ISSUE VALUE	AMOUNT PAID UP	RESERVE FUND	AT WORKING ACCOUNT OR CARRIED FORWARD	DATE	LAST DIVIDEND	FOR TERM	CLOSING QUOTATION
Brett & Co., Ltd.	-Y- 28,000	2800	-Y- 10	-Y- 10			31-12-06	8%	for 1 year	10 Sellers.
Club Hotel, Ltd.	185,000	1850	100	100	3,000	-Y- 943.52	31-3-07	10%	for ½ year	75 Sellers.
Grand Hotel, Ltd.	500,000	5000	100	100	10,000	-Y- 8,762.67	31-12-07	5%	for ½ year	100 Sellers.
Helm Bros., Ltd.	186,000	3720	50	50	25,000	-Y- 1,682.93	31-12-07	20%	for 1 year	80 Sellers.
Langfeldt & Co., Ltd.	150,000	1500	100	100		Dr. 14,115.95	31-12-07		for ½ year	45 Sales.
C. Nickel & Co., Ltd. †	500,000	20000	25	25		1,729.20	31-10-07	20%	for 1 year	41 Buyers.
Yokohama Engine and Iron Works *	500,000	10000	50	50	50,000	-Y- 12,477.04	31-5-07	10%	for ½ year	80 Sellers.
Oriental Hotel, Ltd., Ordinary }	250,000	3000	50	50	62,285.42		31-8-06	15%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference }		2000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10000	100	100	3.259.65	1,774.45	30-9-07	7%	9 mos.	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	100 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 1st issue	-Y-100	-Y-100	5%	June and Dec.	-Y- 99.40
Exchequer Bonds 2nd issue	100	100	5%	March and Sept.	,, 92.10
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 92.10
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 81.90
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 81.90
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 79.40
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 82.30
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 95.50
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 93.80
Osaka Harbour Bonds	100	100	6%	June and Dec.	,, 91.50
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 93.50
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 96.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 650.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	8%	June and Dec.	,, 59.00
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 38.00
Keihin Electric Tramway Company, Limited	50	50	13%	June and Dec.	,, 66.50
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 25.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 91.50
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	22%	July and Jan.	,, 76.95
Fuji Gassed-Yarn Company, Limited	50	50	25%	July and Jan.	,, 73.90
Tokyo Cotton Spinning Company, Limited	50	50	18%	July and Jan.	,, 38.50
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 53.50
Nisshin Boseki Kabushiki Kaisha	50	12½	......	——	,, 7.45
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	17½%	May and Nov.	,, 71.60
Ensuiko Sugar Refinery Company, Limited	50	12½	18%	June and Dec.	,, 15.50
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 77.00
Kirin Brewery Company, Limited	50	50	8%	July and Jan.	,, 63.00
Docks & Steamships.					
Yokohama Dock Company, Limited	50	33	12%	June and Dec.	,, 48.00
Uraga Dock Company, Limited	50	50	......	July and Jan.	,, 7.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 70.00
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 80.55
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 84.00
Miscellaneous					
Tokyo Electric Light Company, Limited	50	50	10%	June and Dec.	,, 65.00
Tokyo Gas Company, Limited	50	50	15%	July and Jan.	,, 80 40
Yokohama Union Electric Light Company, Limited	50	50	15%	July and Jan.	,, 70.00
Fuji Paper Mills	50	50	10%	June and Dec.	,, 44.00
Otaru Timber Company, Limited	50	50	15%	March and Sept.	,, 21.65
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 114.00
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 93 00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 40.00
Tokyo Stock Exchange Company	50	50	11%	June and Dec.	, 102.00
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 107.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 85.00

BANGKOK QUOTATIONS

NAME.	BUYERS	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 505	Tcs. 505	1901	£ 300,000	30,000	£ 10	£ 300,000	Tcs 418,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, 200	,, —	,, 210	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1906
Siam Tramway Co., Ltd	,, 160	,, 168	,, 168	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1907 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, 124	,, 128	,, 128	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316 22	2½%	Dec. 31, 1907
Bangkok Manufact. Co., Ltd.	,, 145	,, 150	,, 150	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	June 30, 1907 Dec. 31, ,,
Howarth Erskine, Ltd.	,, —	,, —	,, 225	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	7½%	Oct. 31, 1907
Bangkok Dock Co., Ltd.	,, —	,, —	,, 305	1865	Tcs. 666,666	4,000	Tcs. 166⅔	Tcs. 666,666	Tcs. 270,000 60,000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 100	,, 100	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, 1,300	,, 1,400	,, 1,400	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	2½%	Sept. 30, 1907
Menam Motor Boat Co.	,, 150	,, 160	,, 160	1905	,, 200,000	2,000	,, 100	,, 125,000	—	5%	July 31, 1907
Jenderata Rubber Co	,, 65	,, 73	,, 73	1906	£ 40,000	4,000	£ 10	£3, per Share	—	None	—
Langsuan Tin Mine Co.	,, —	3/	4/	1905	£ 170,000	170,000	£ 1	£ 60,000	—	—	—

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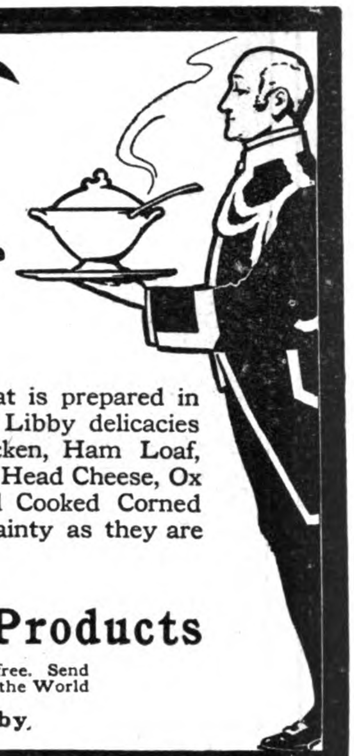

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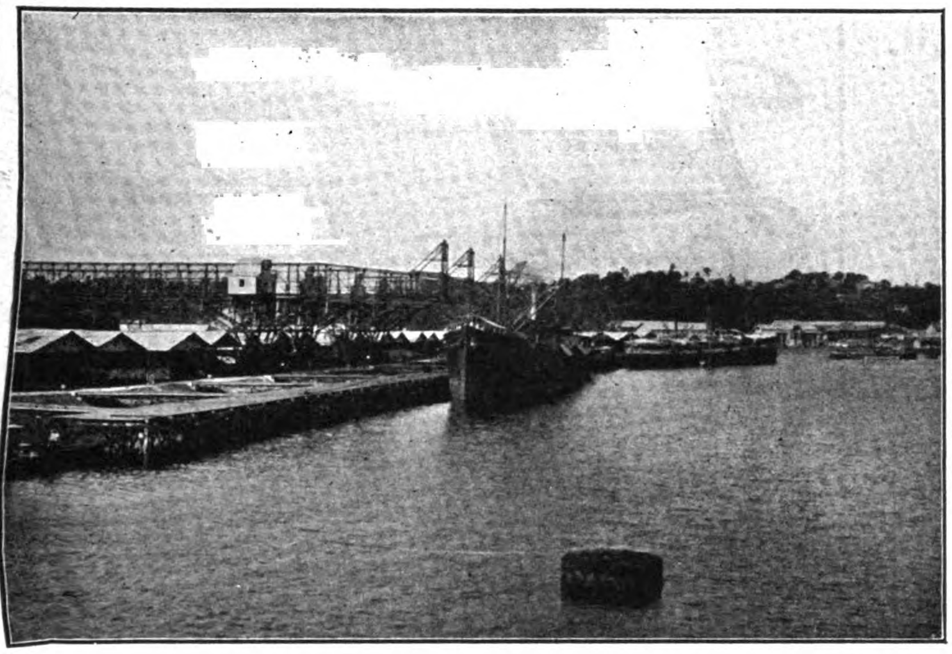

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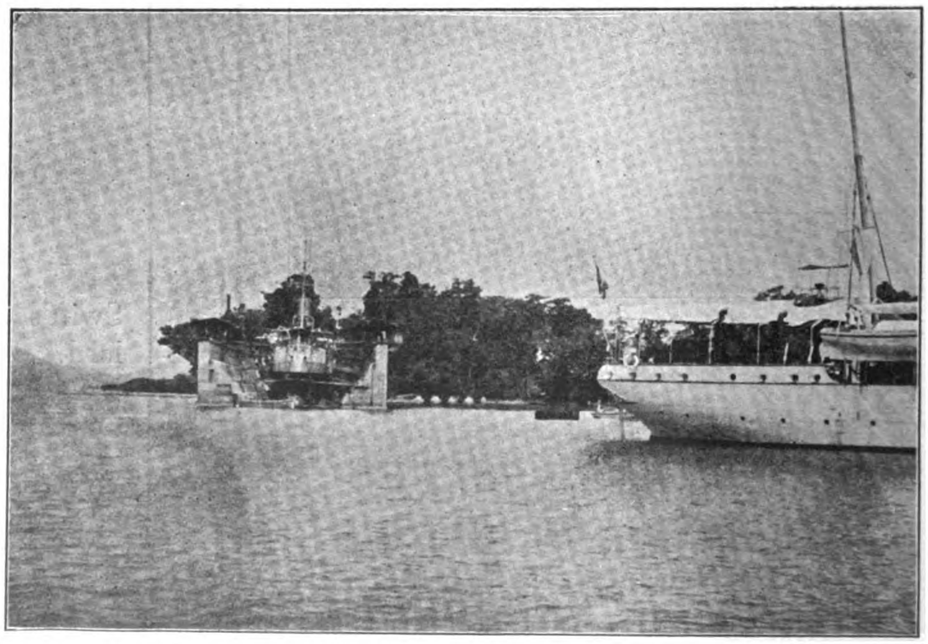

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The Company has SIX GRANITE DOCKS and TWO PATENT SLIPS of the following dimensions:—

NAME OF DOCK OR SLIP	LENGTH ON KEEL BLOCKS	BREADTH AT ENTRANCE	DEPTH OVER SILL AT ORDINARY SPRING TIDES	RISE OF TIDE	
				SPRINGS	NEAPS
KOWLOON	*Feet.*	*Feet.*	*Feet.*	*Feet.*	*Feet.*
No. 1 Dock, Kowloon	576	86 feet top / 70 ft. bottom	30′	7′ 6″	3
No. 2 Dock, Kowloon	371	74′	18′ 6″	7′ 6″	—
No. 3 Dock, Kowloon	264	49′ 3″	14′	7′ 6″	—
Patent Slip, No. 1, Kowloon	240	60′	14′	7′ 6″	—
Patent Slip, No. 2, Kowloon	220	60′	12′	7′ 6″	—
TAI-KOK-TSUI					
Cosmopolitan Dock	466	85′ 6″	20′	7′ 6″	—
ABERDEEN					
Hope Dock	430	84′	23′	7′ 6″	—
Lamont Dock	333	64′	16′	7′ 6″	—

The DOCKS are fitted with every appliance in the way of Caissons, powerful Centrifugal Steam Pumps, etc., which enable them to be pumped out in three hours.

WORKSHOPS.—The extensive workshops on the premises at Kowloon, Cosmopolitan, and Aberdeen Docks possess every facility and appliance necessary for the repairs of ships and steam machinery. The Engineers' Shops are supplied with a large plant of the latest types of tools in the way of Lathes, Planing, Milling and Screwing Machines, Electric Cranes, etc., etc., and capable of executing the largest class of work with despatch. The Shipwrights' Department has attached to it a Steam-Sawmill with Circular, Vertical and Band Saws, and also a complete plant of Wood-working Machinery of the most modern and improved type. The Blacksmiths' Shops are equally well furnished with a complete supply of powerful Steam Hammers, Cranes, etc., capable of forging stern posts and crank and straight shafting of the largest size.

Powerful Lifting Shears with steam purchase at two of their Establishments stand on a solid granite seawall, alongside which vessels can lie drawing 24 feet of water, and take in or out boilers, etc. The Shears at Kowloon are capable of lifting 70 tons.

The Company is prepared to tender for the construction of new vessels in either steel, iron or wood, having already built about 400 of varying sizes up to 3,000 tons; also to execute all kinds of ship work at lower rates and with greater despatch than any establishment in the East. Every department is under the close supervision of experienced European foremen.

SHIP-YARD is fully equipped with modern plant, including hydraulic flanging and bending machines, electrically driven rolls, punching, shearing, angle-bevelling, joggling and planing machines, capable of dealing with the heaviest class of work.

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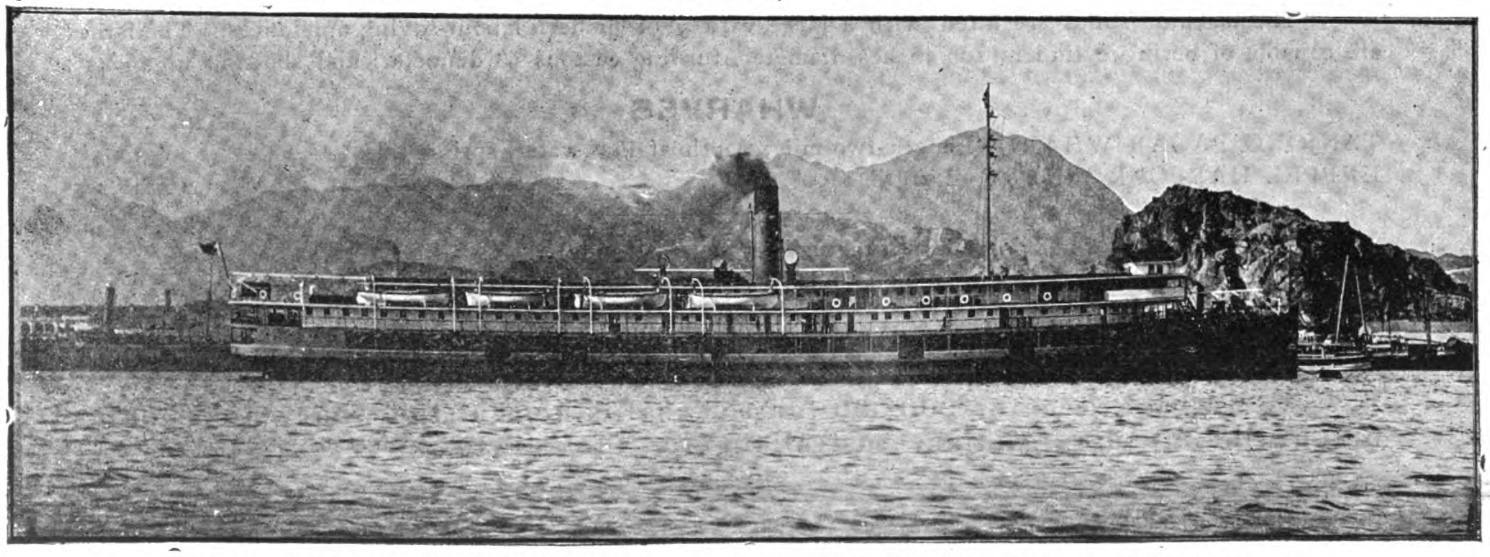

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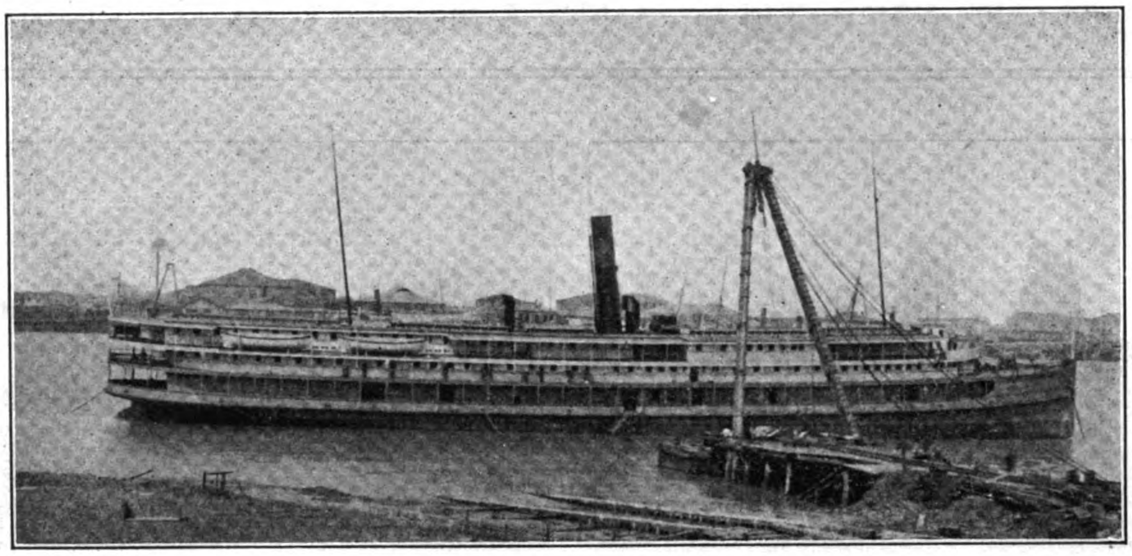

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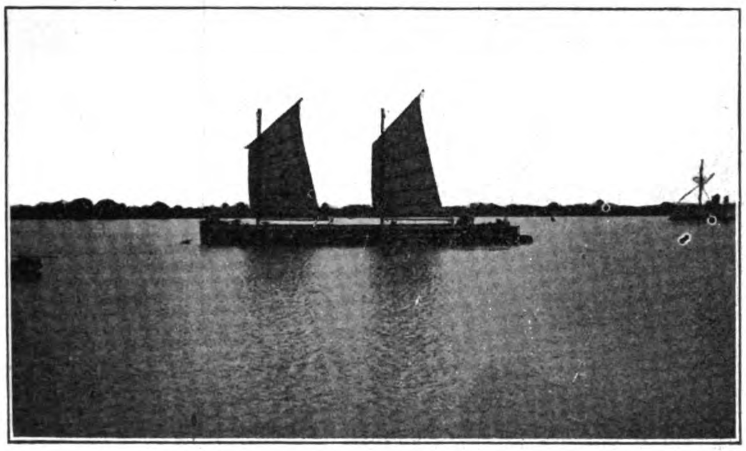

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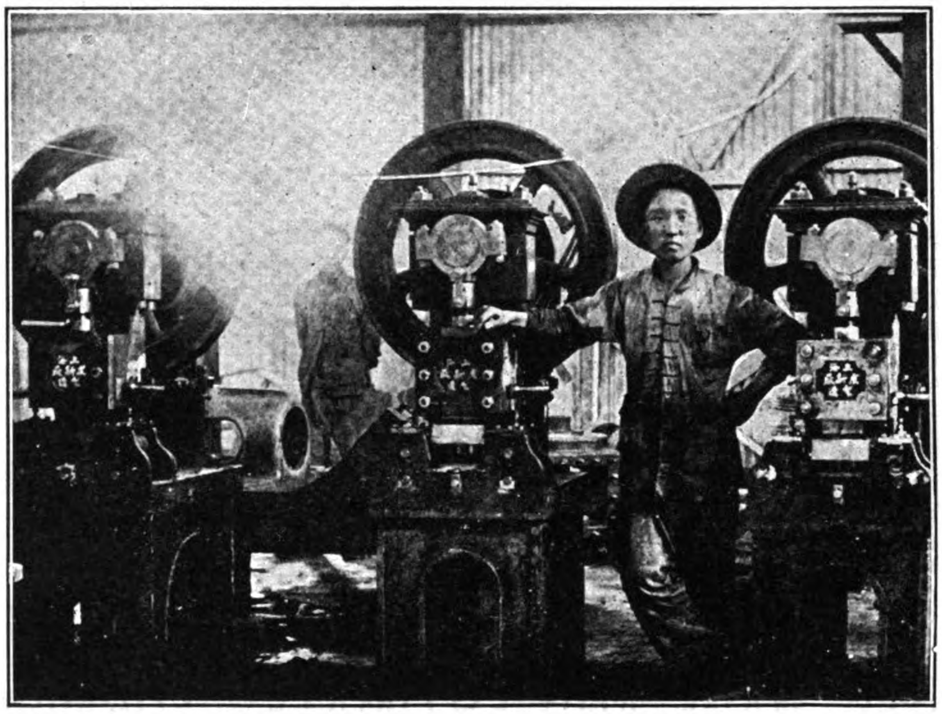

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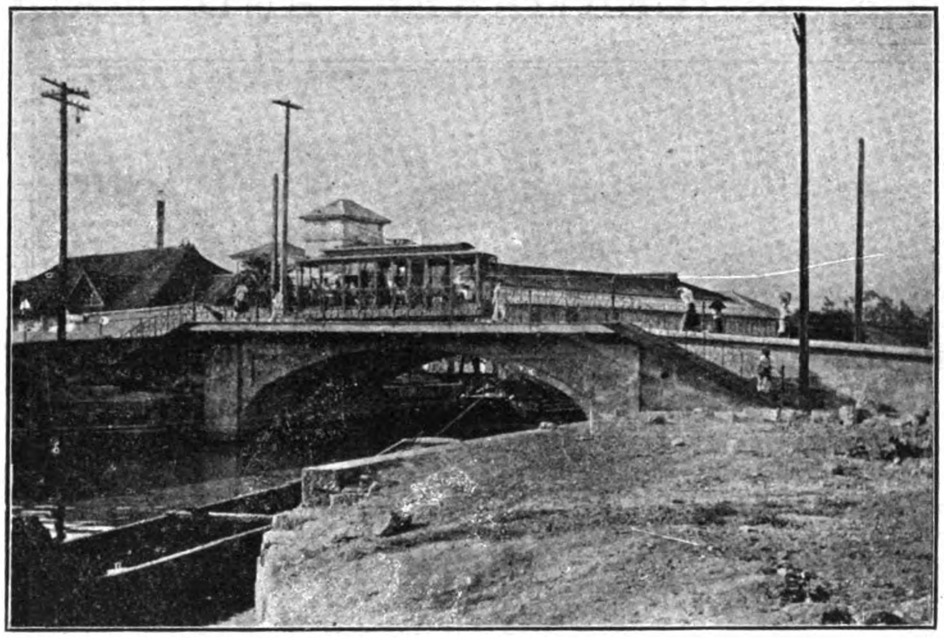

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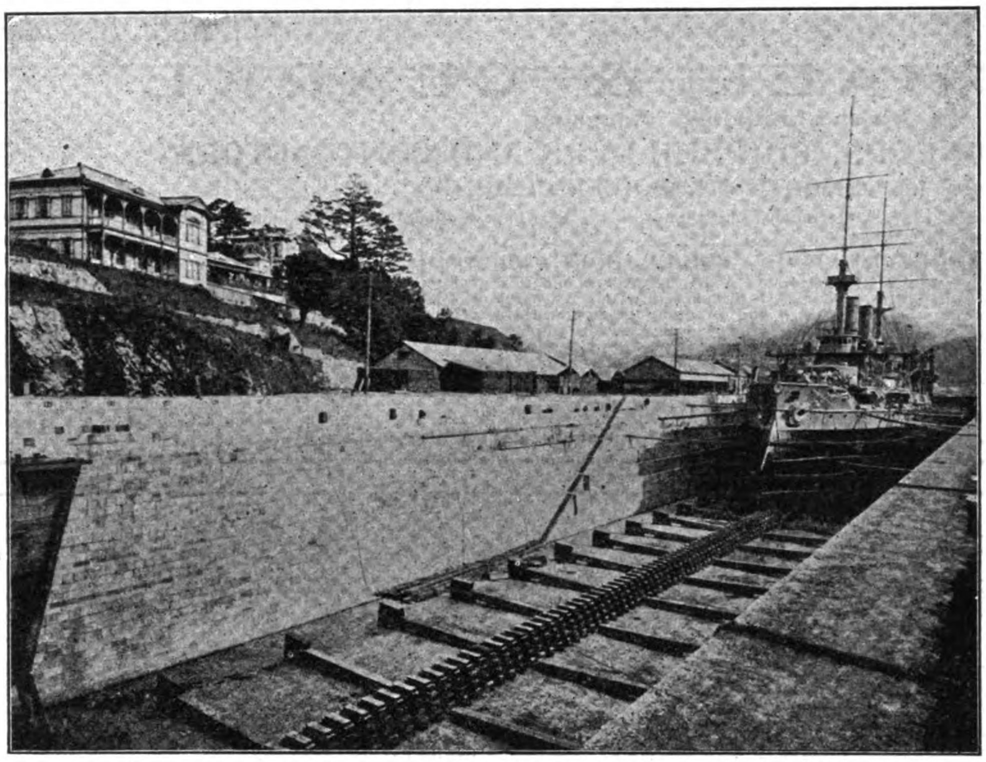

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LENGTH ON BLOCKS	513	"
WIDTH OF ENTRANCE ON TOP . .	88	"
" " " " BOTTOM .	77	"
WATER ON BLOCKS AT SPRING TIDE	26½	"

DOCK NO. 2.

EXTREME LENGTH	371	FT.
LENGTH ON BLOCKS	360	"
WIDTH OF ENTRANCE ON TOP . .	66	"
" " " " BOTTOM .	53	"
WATER ON BLOCKS AT SPRING TIDE	22	"

DOCK NO. 3.

EXTREME LENGTH	722	FT.
LENGTH ON BLOCKS	714	"
WIDTH OF ENTRANCE, TOP . . .	99½	"
" " " BOTTOM .	88½	"
WATER ON BLOCKS AT SPRING TIDE	34½	"

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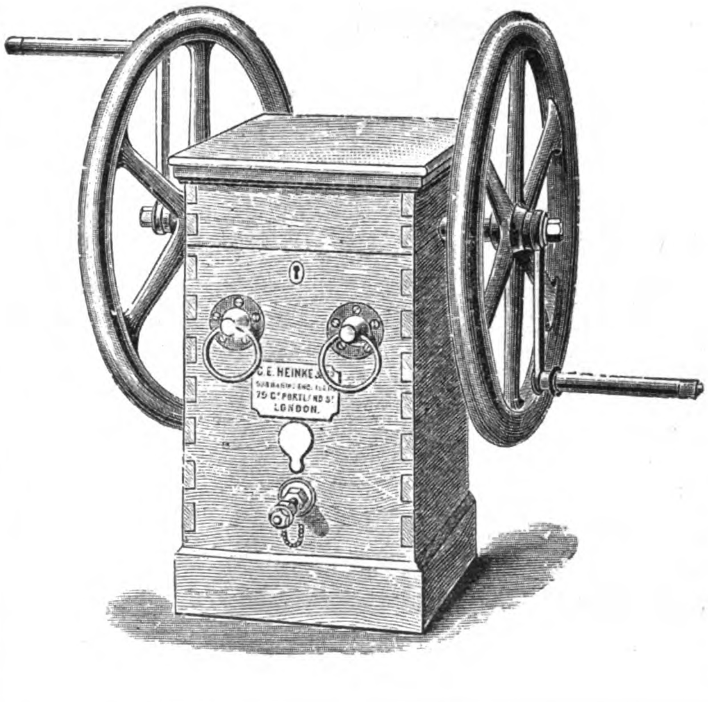

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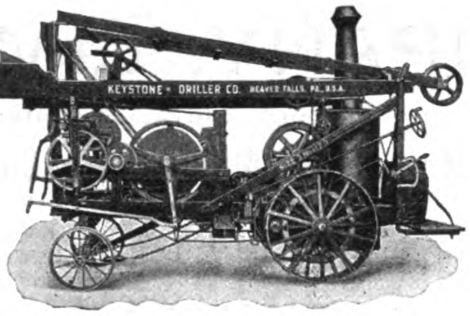

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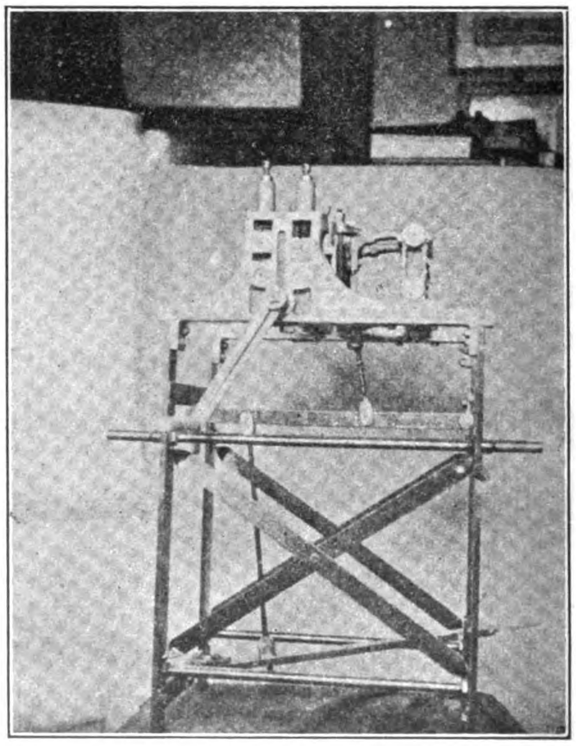

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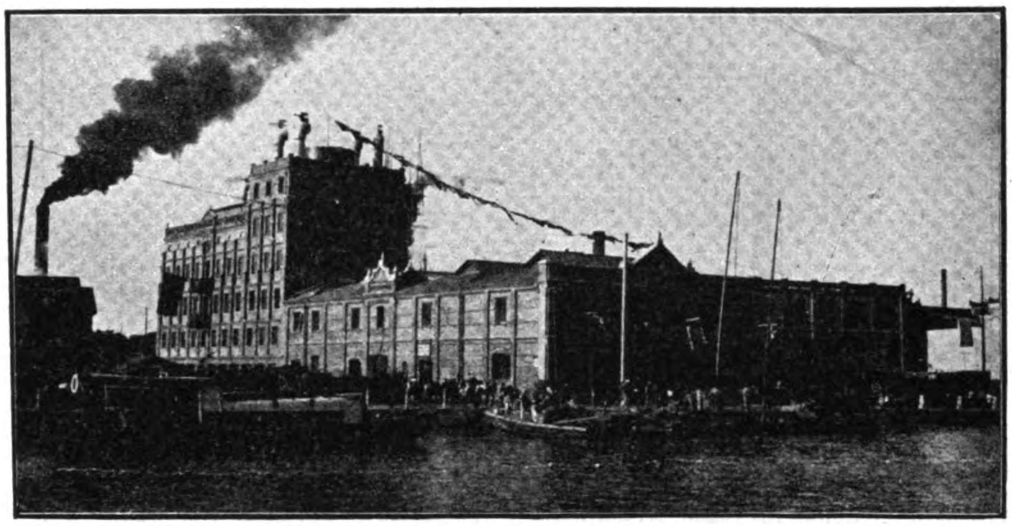

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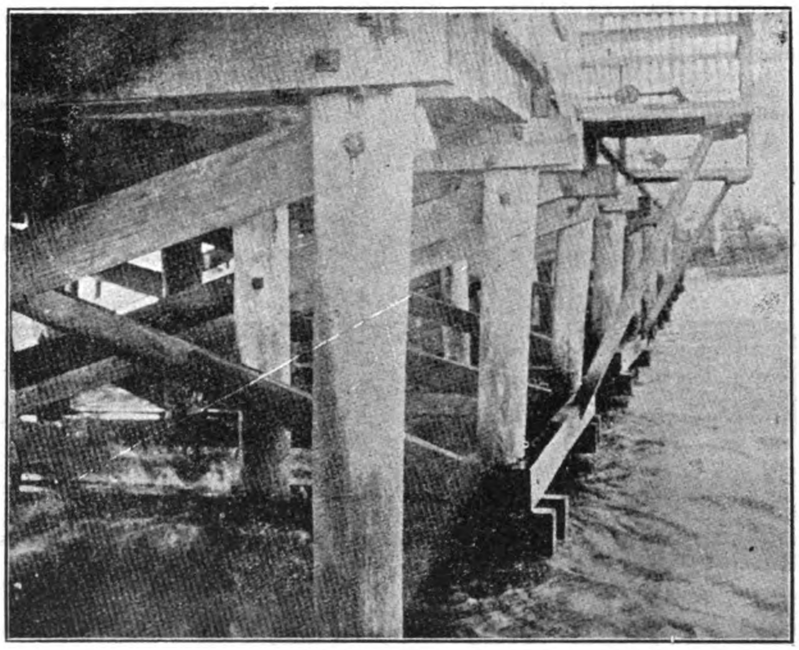

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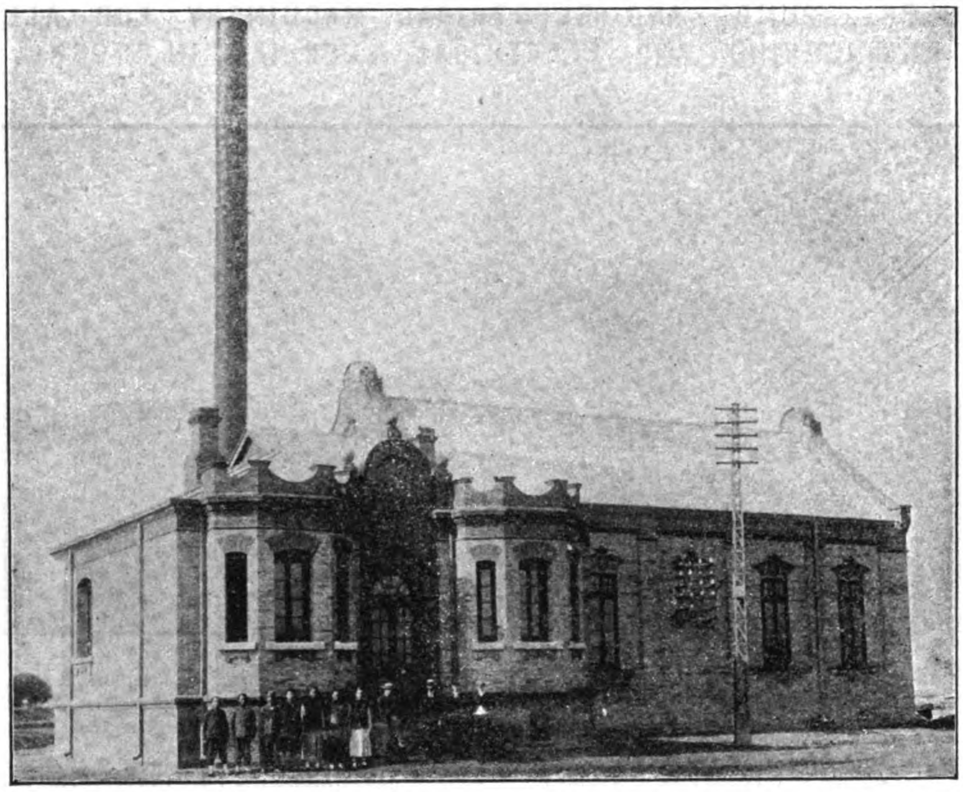

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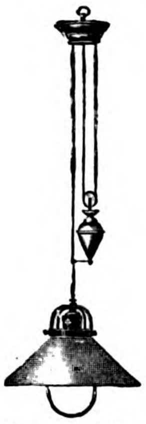

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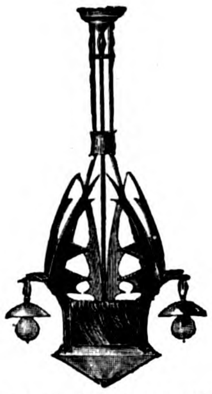

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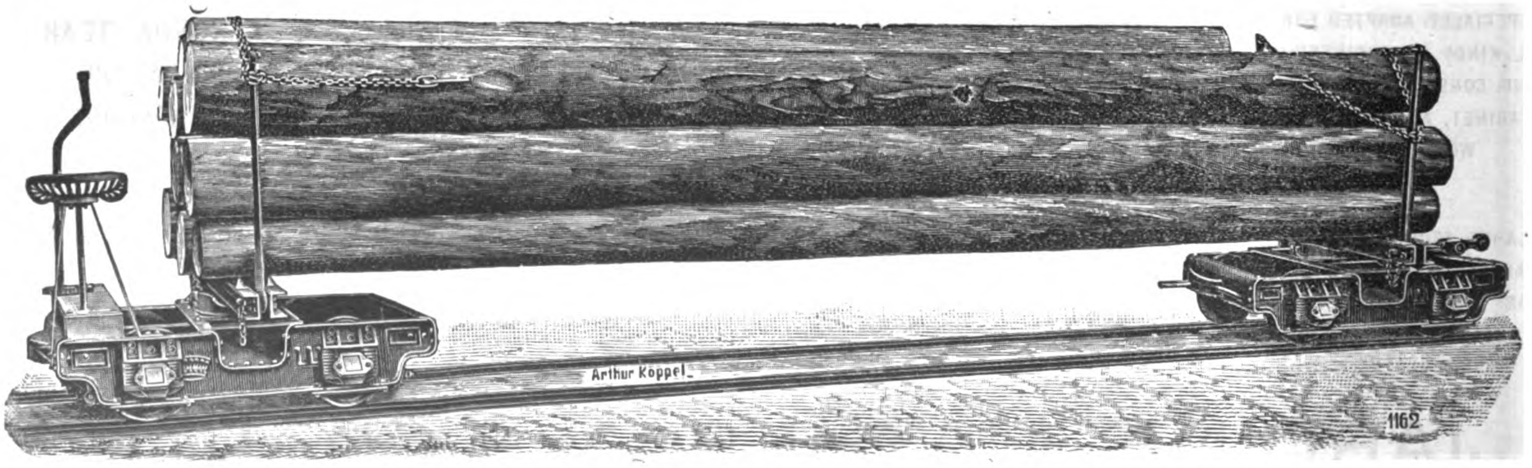

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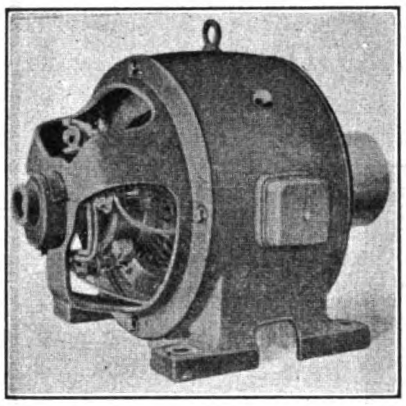

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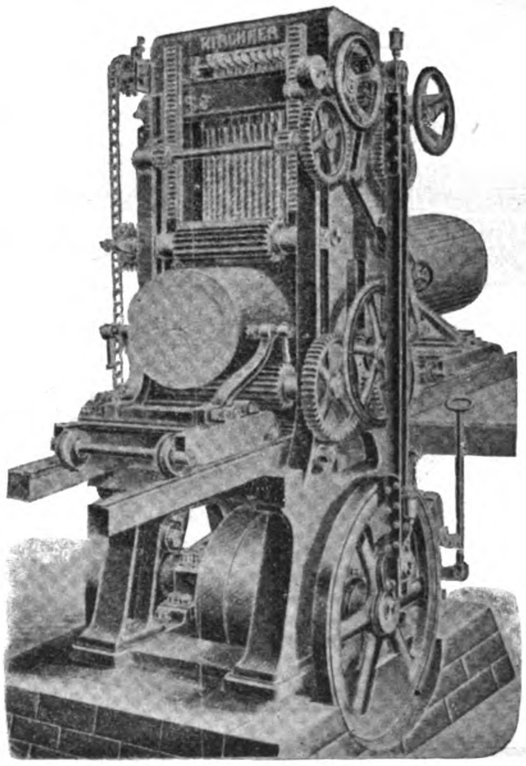

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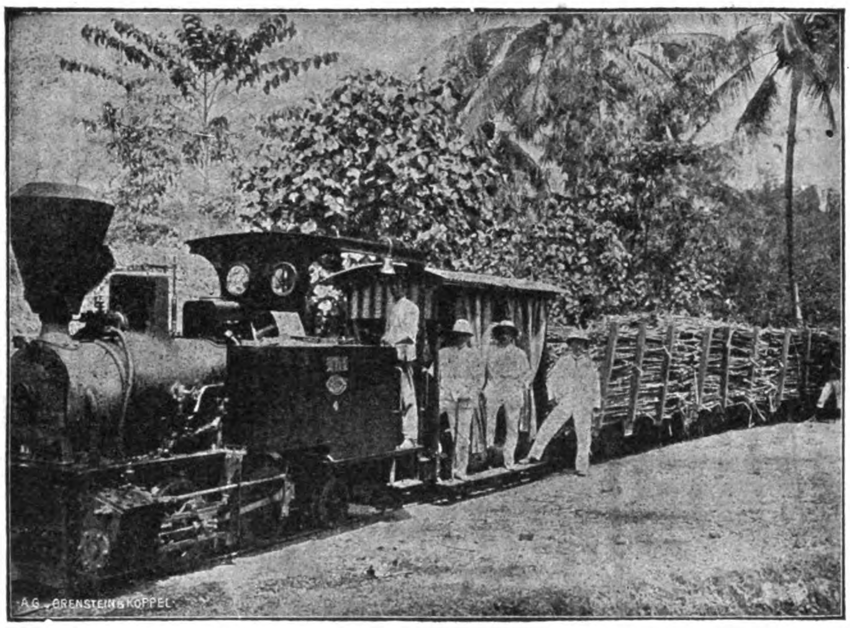

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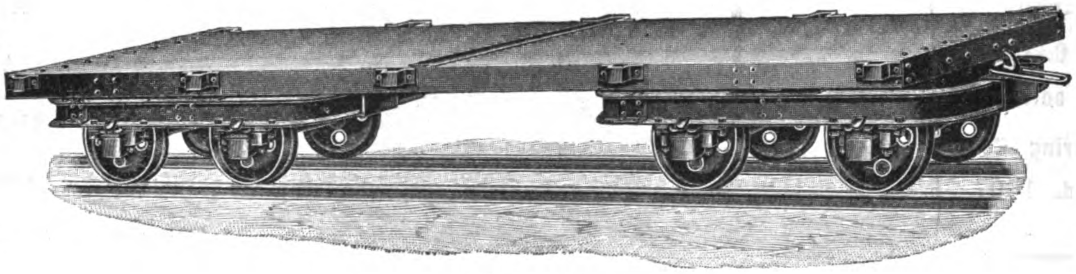

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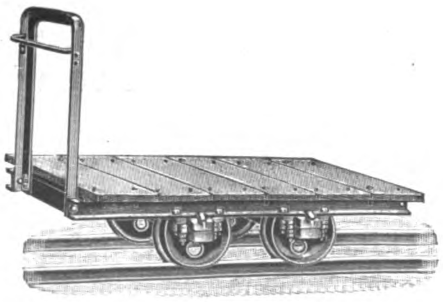

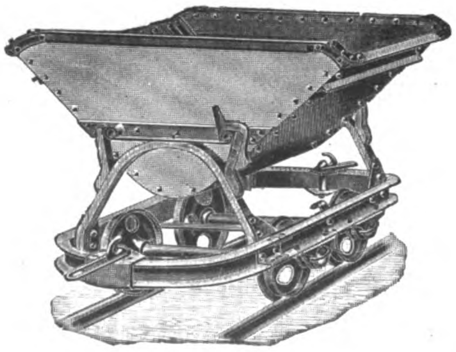

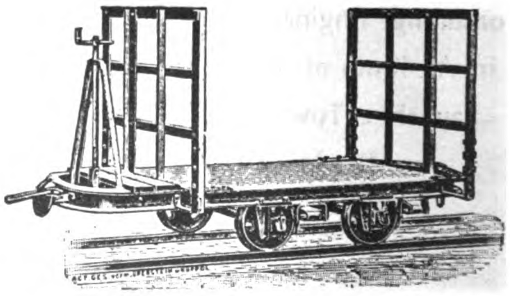

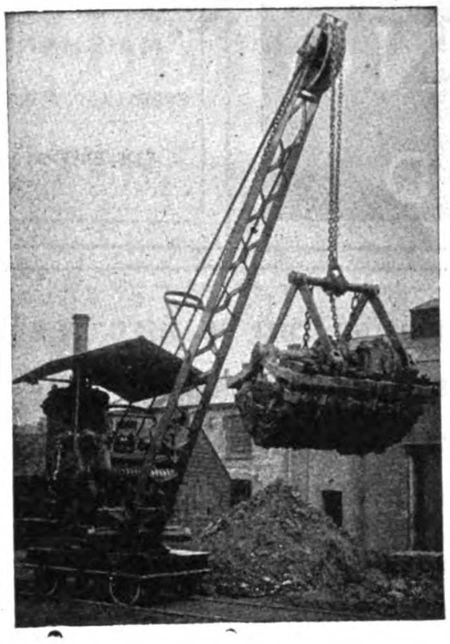

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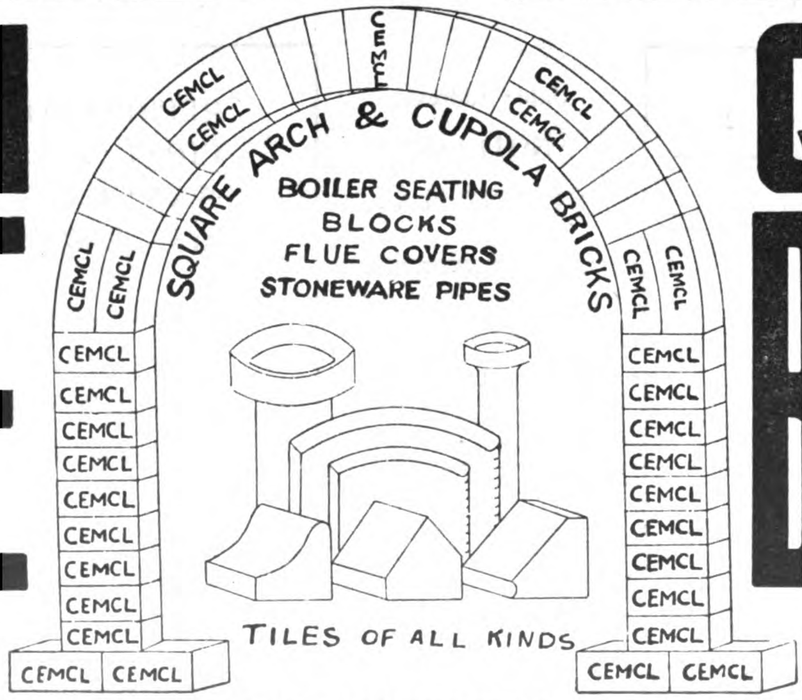

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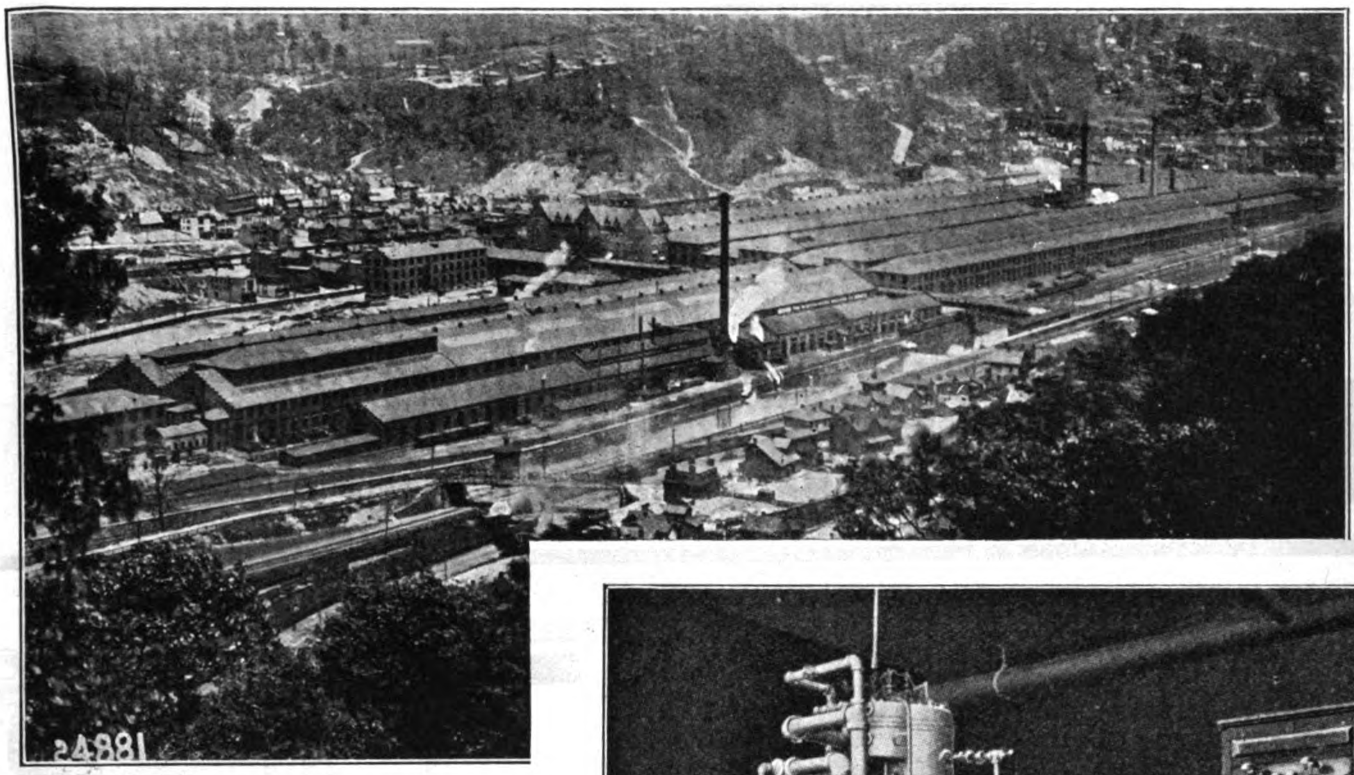

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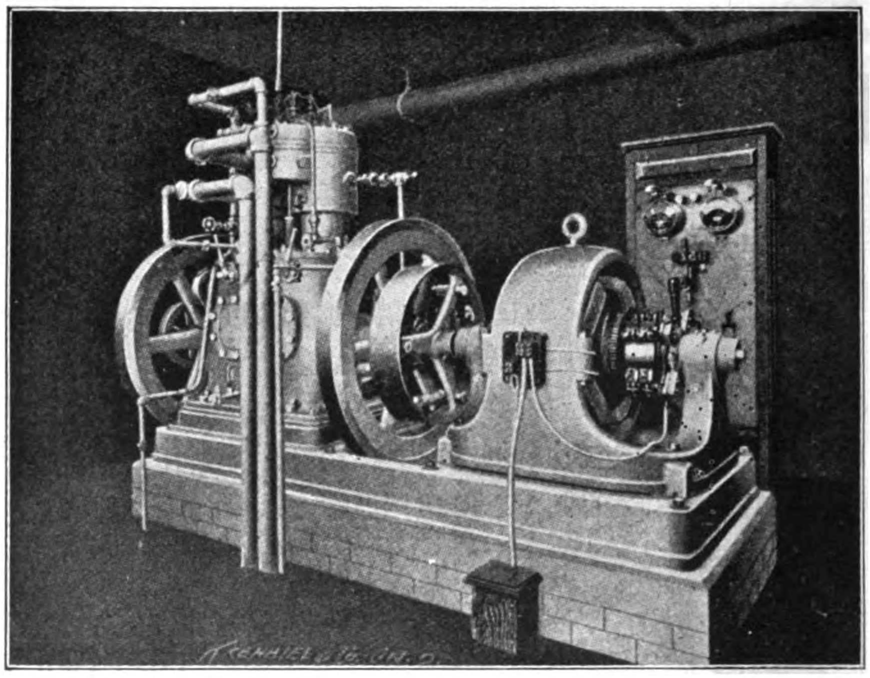

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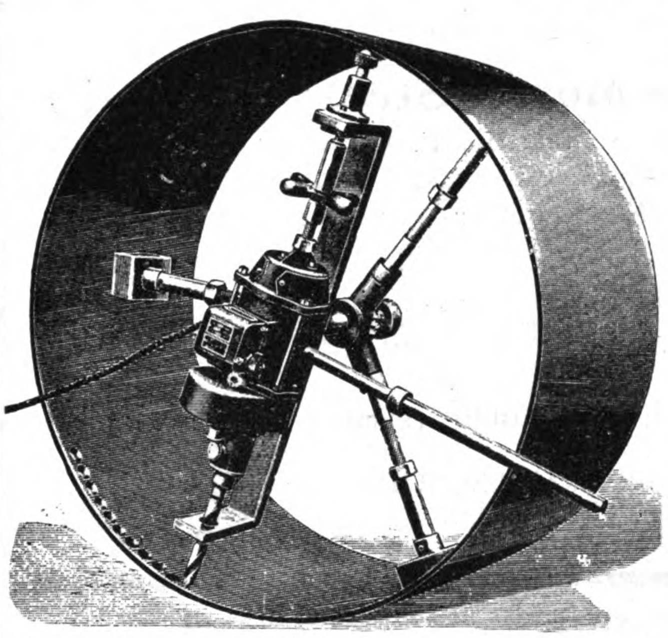

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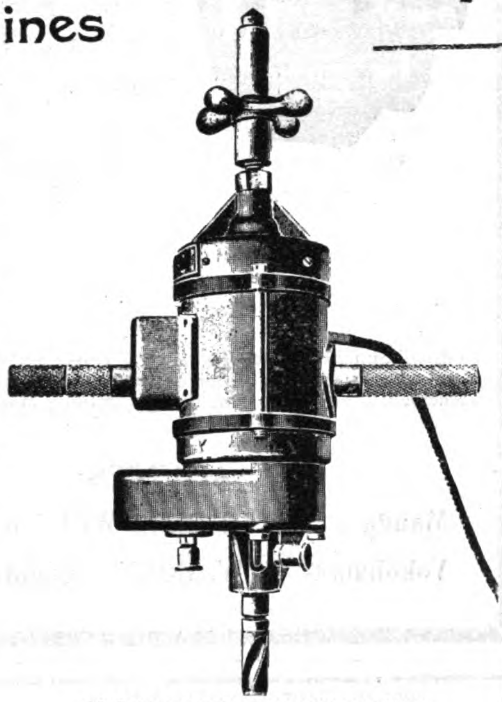

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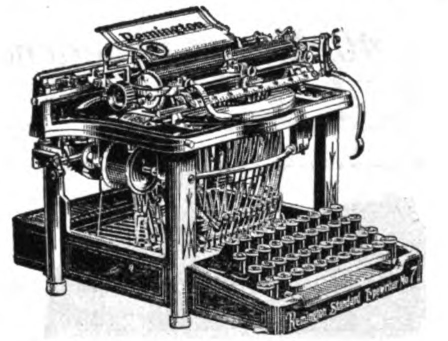

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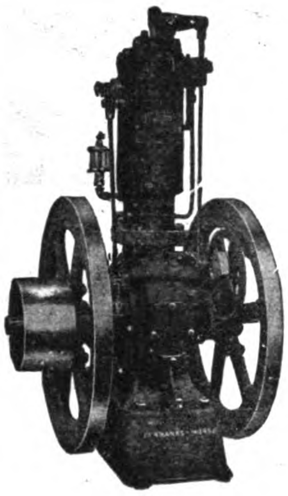

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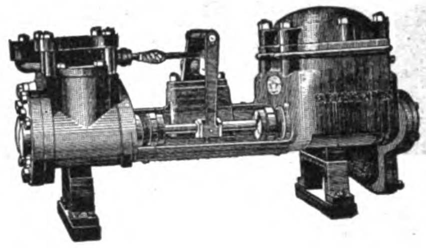

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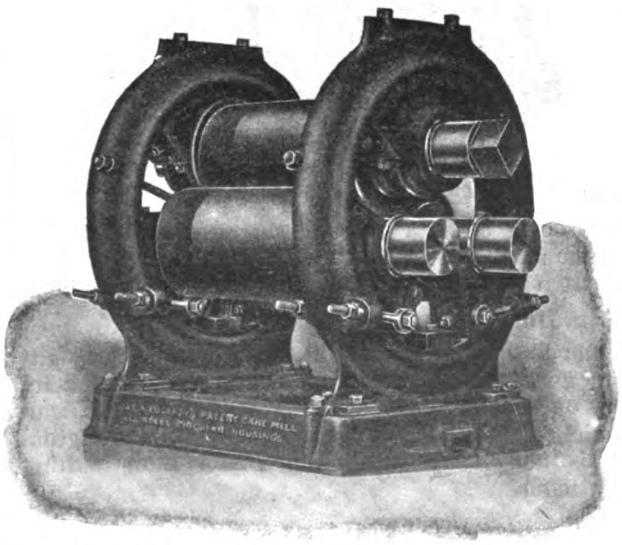

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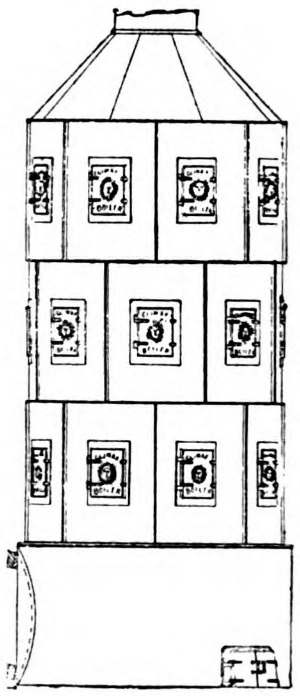

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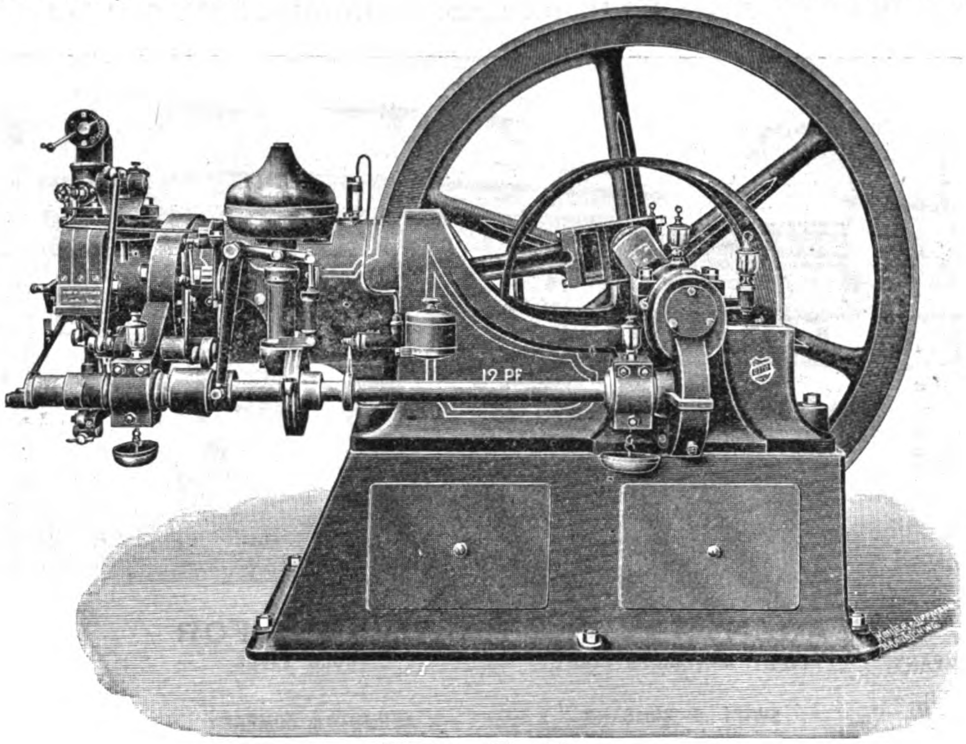

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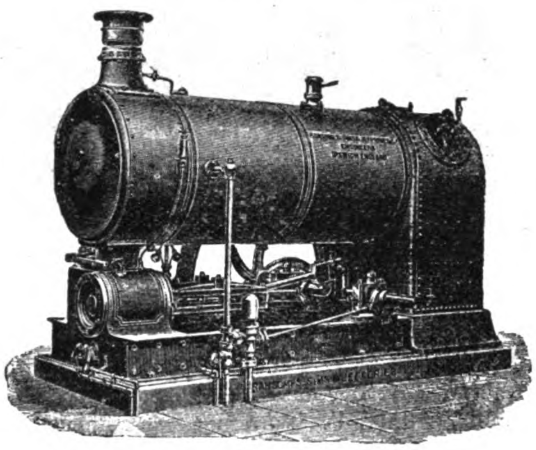

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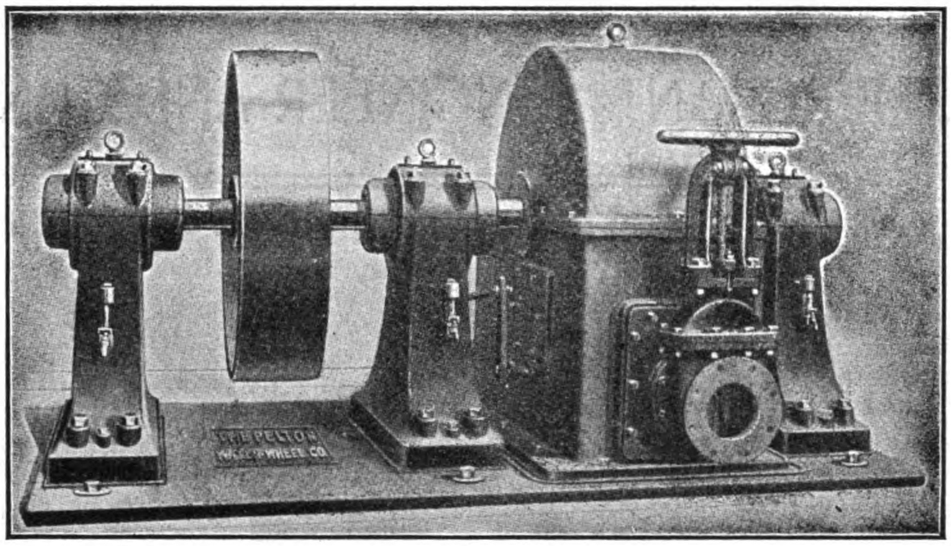

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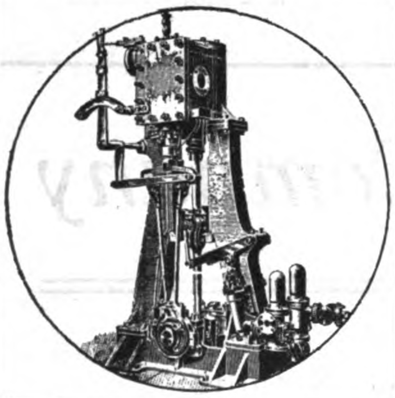

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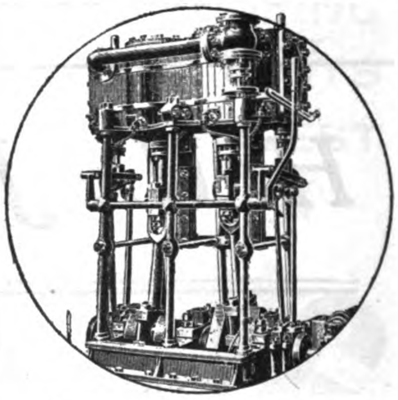

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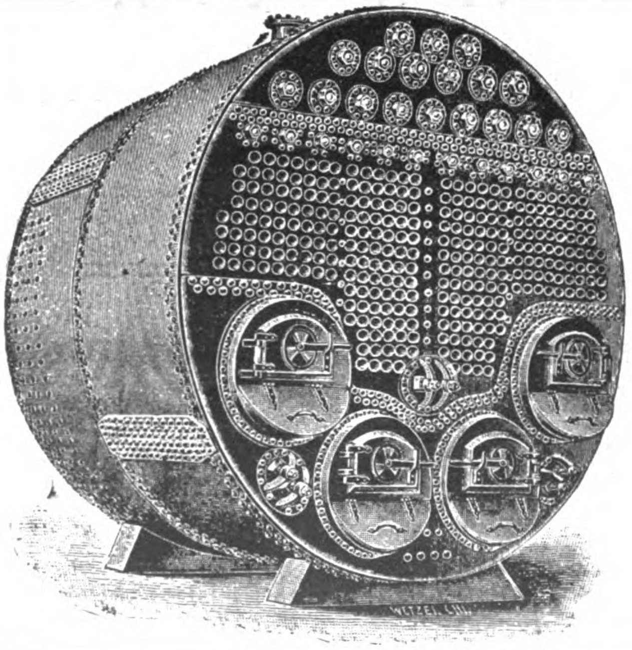

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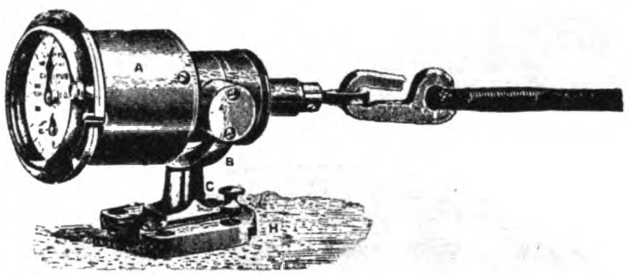

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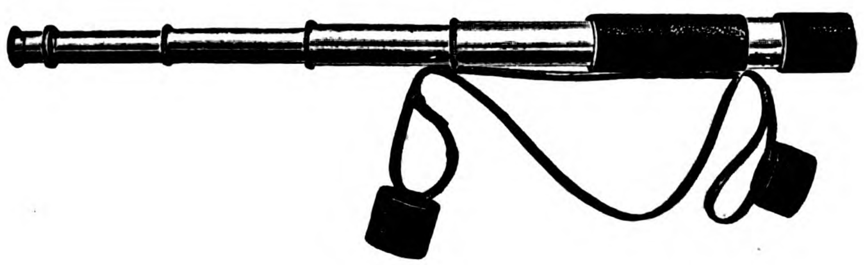

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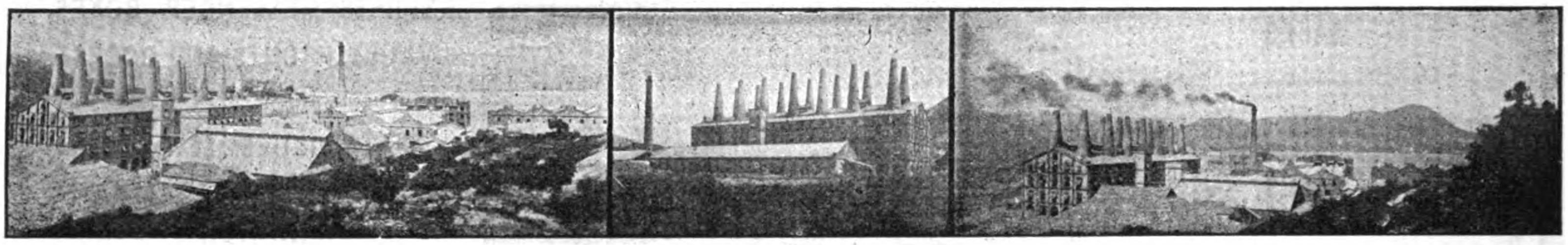

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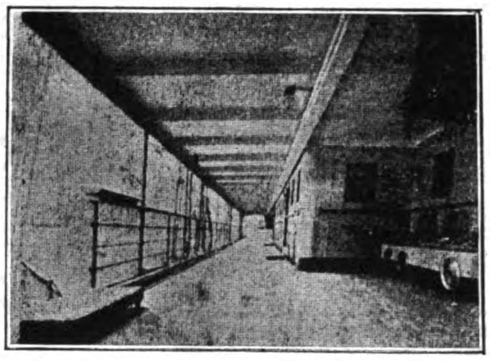

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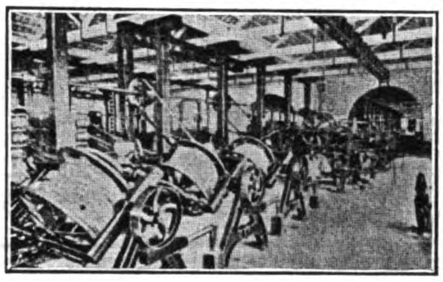

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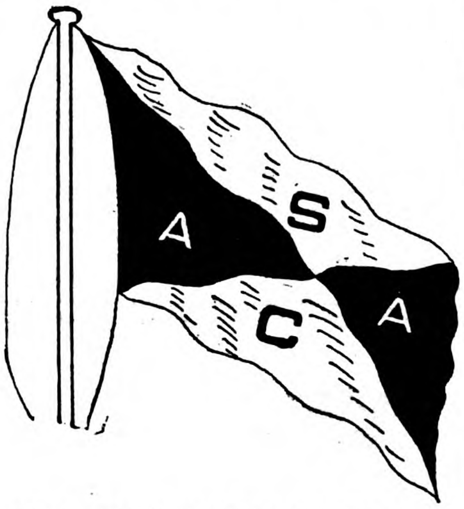

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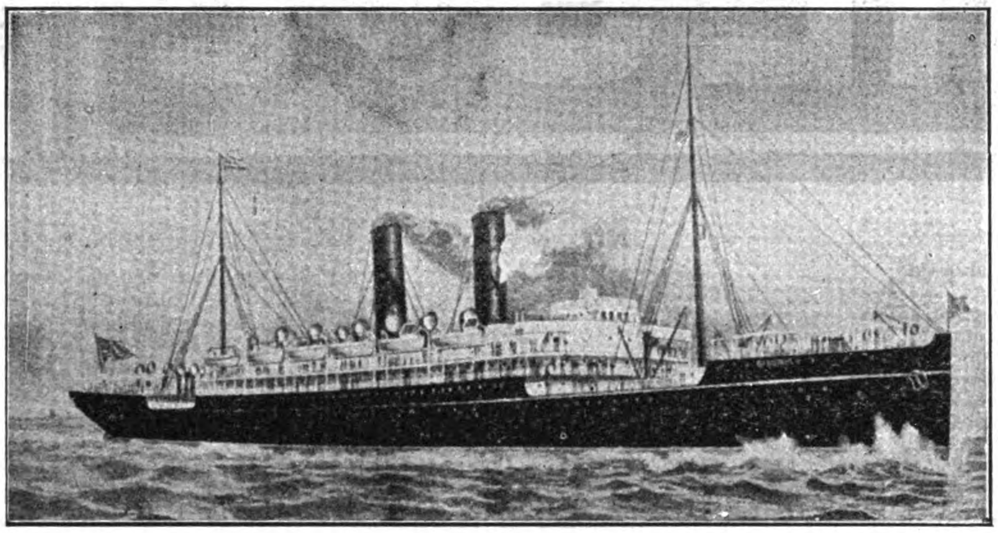

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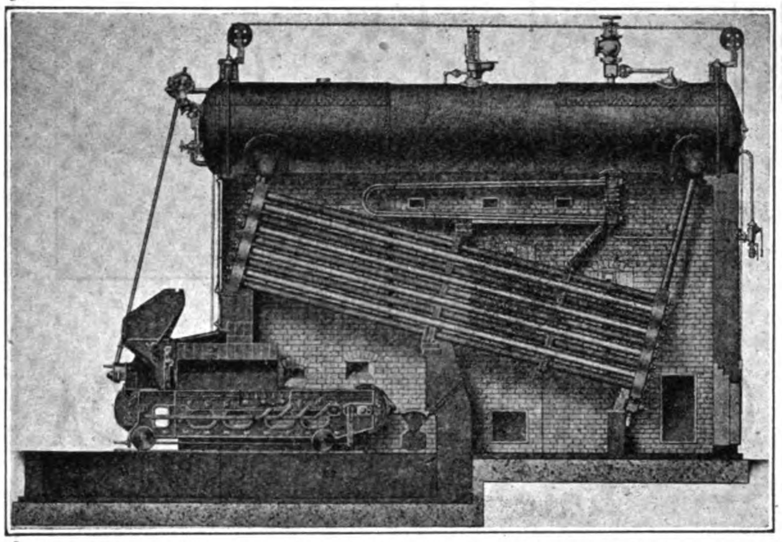

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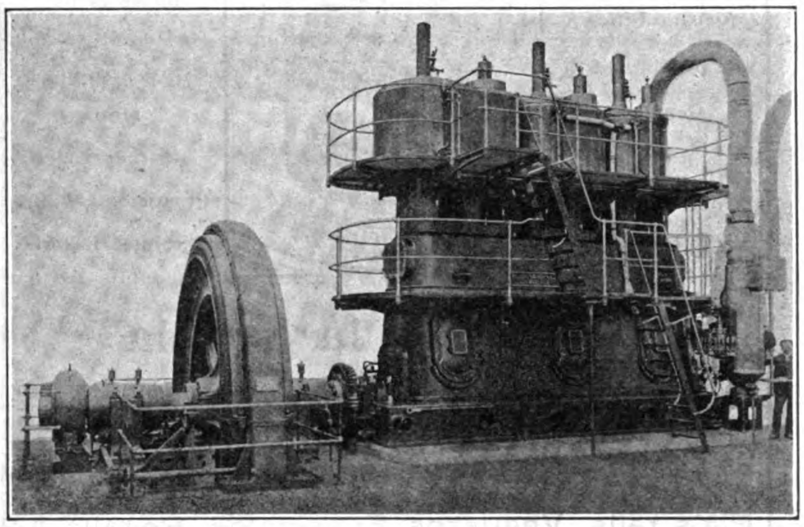

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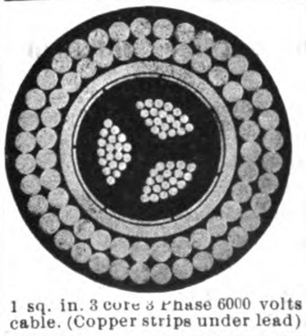

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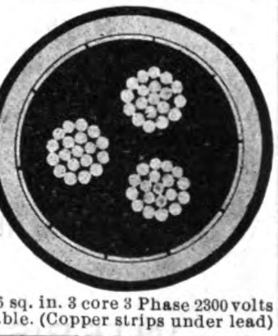

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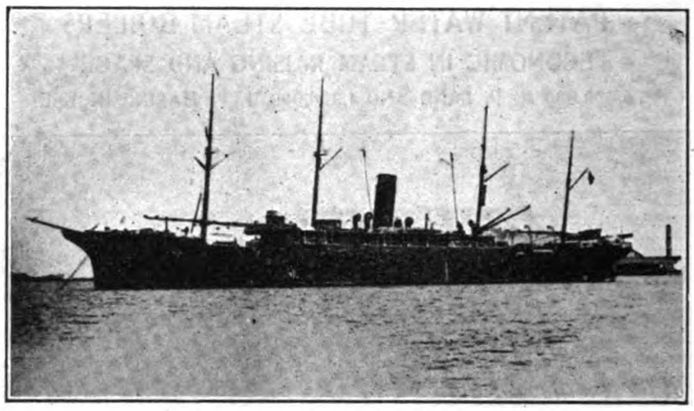

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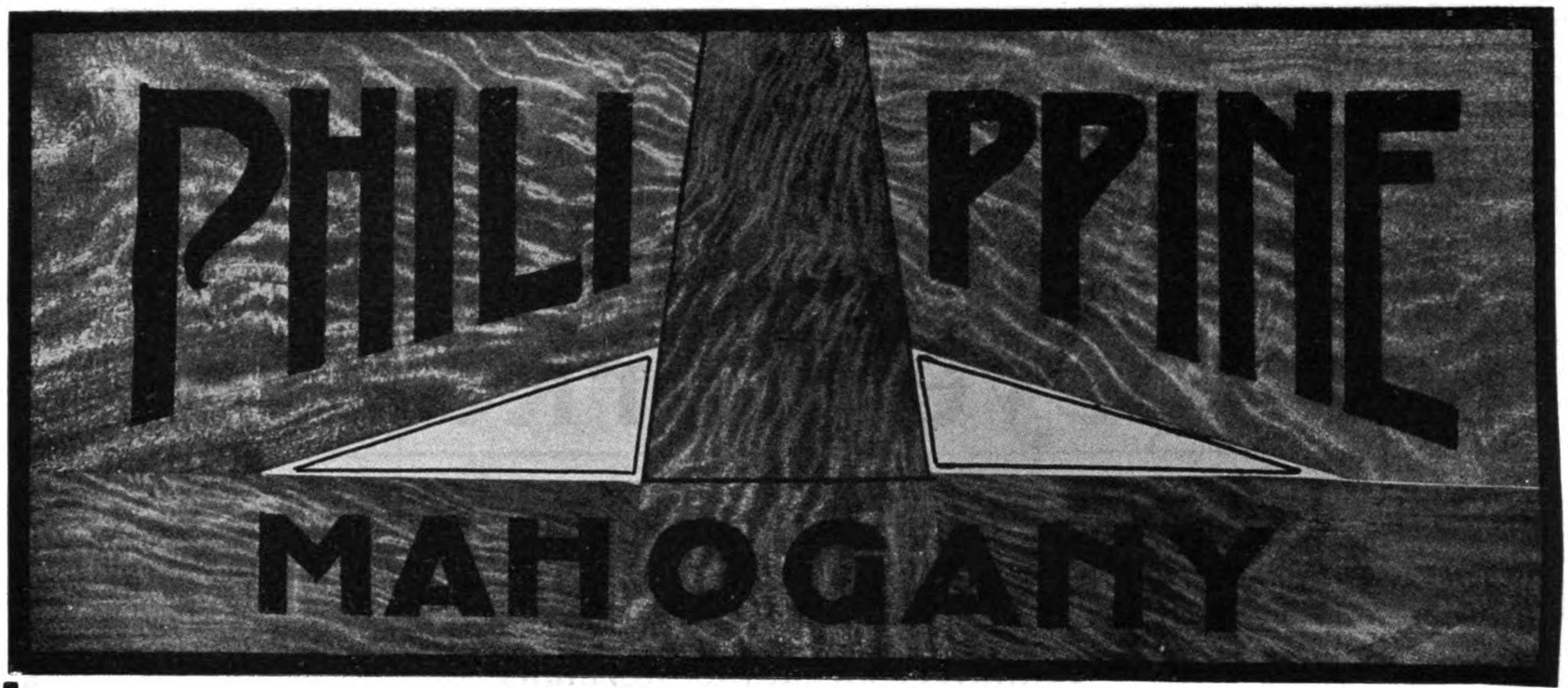

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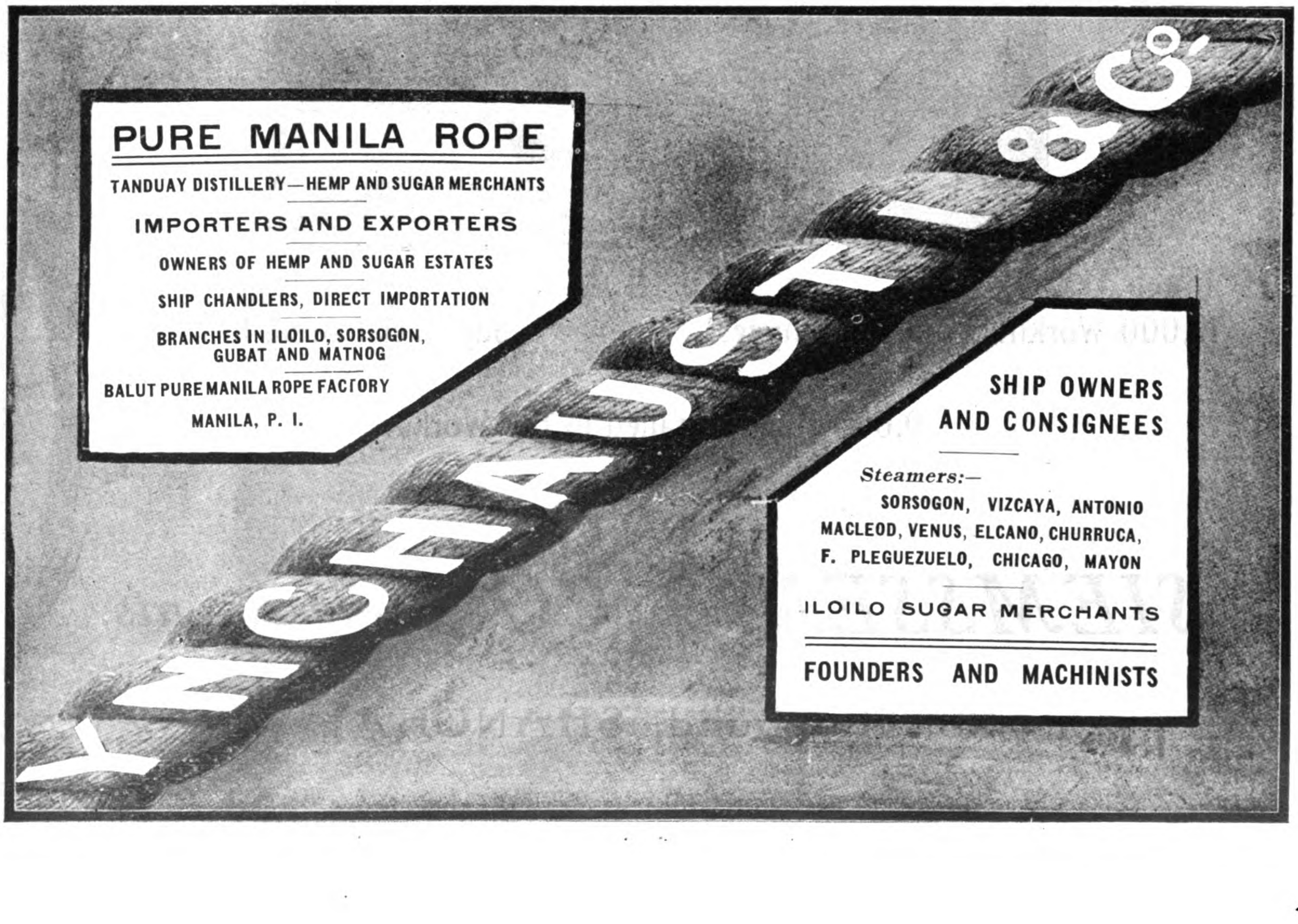

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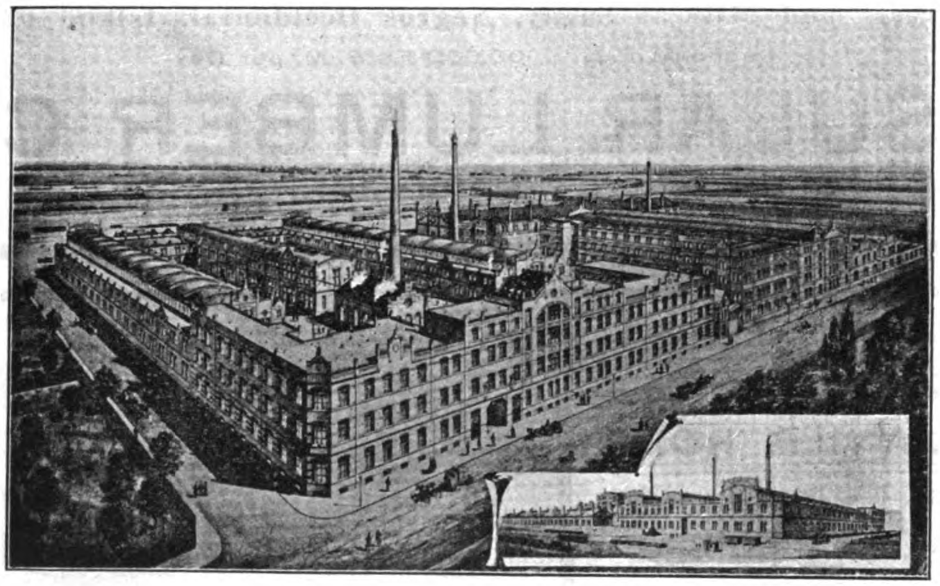

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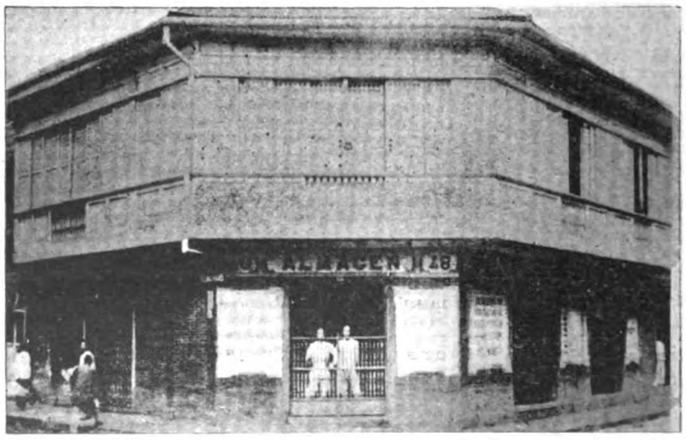

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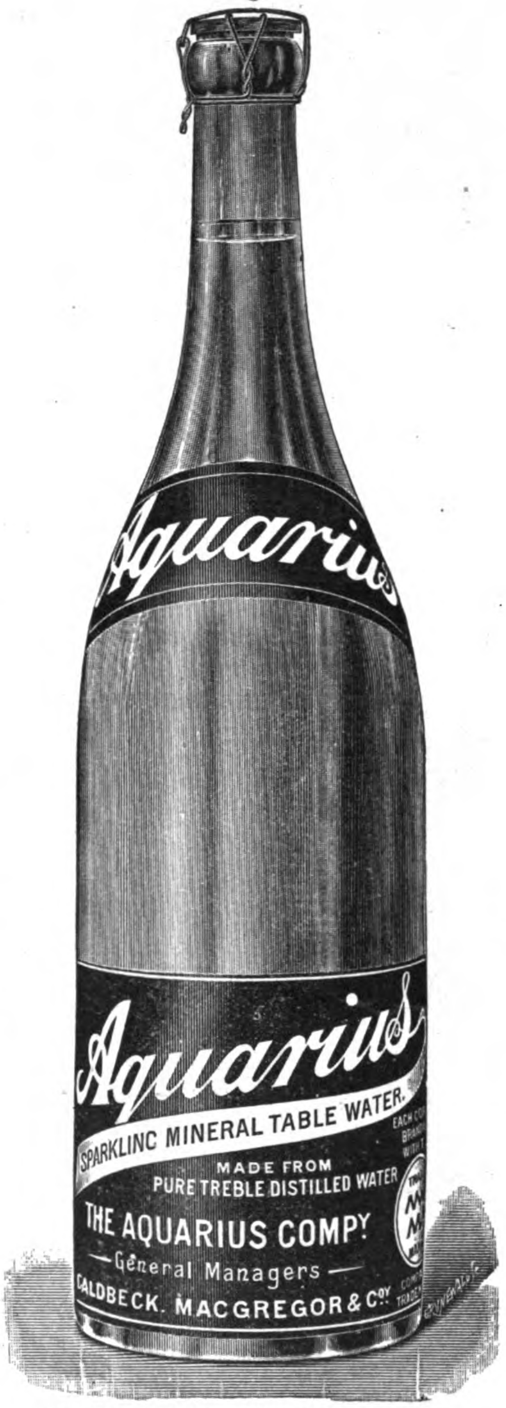

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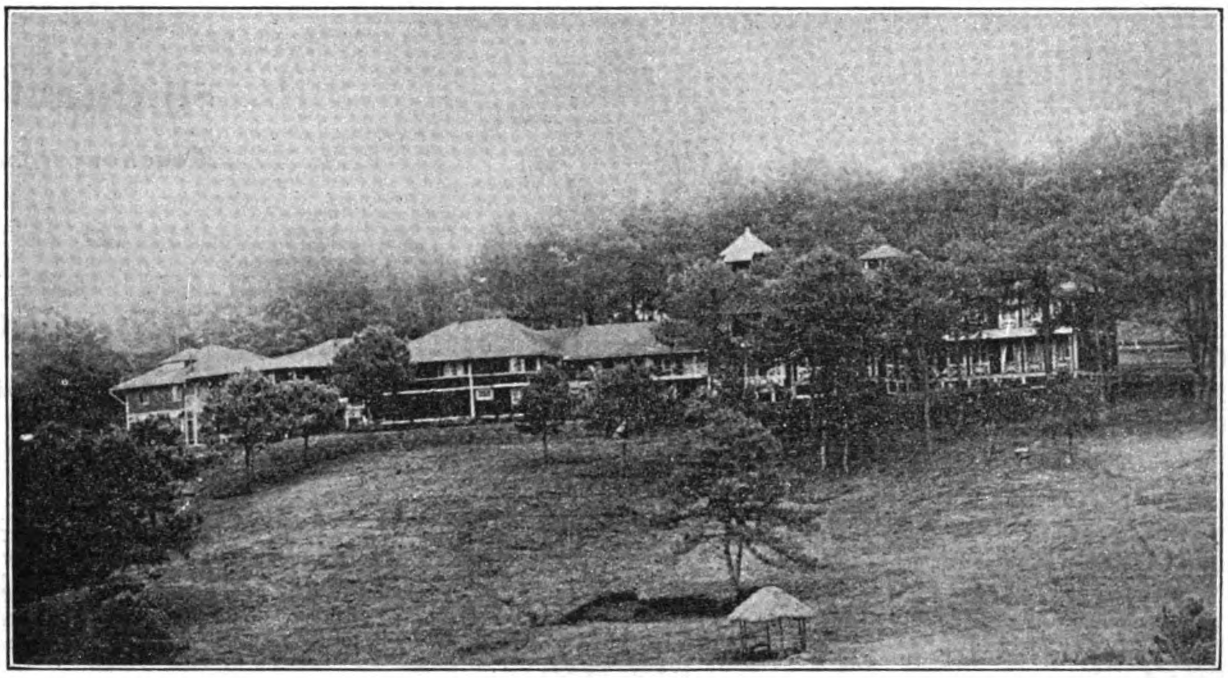

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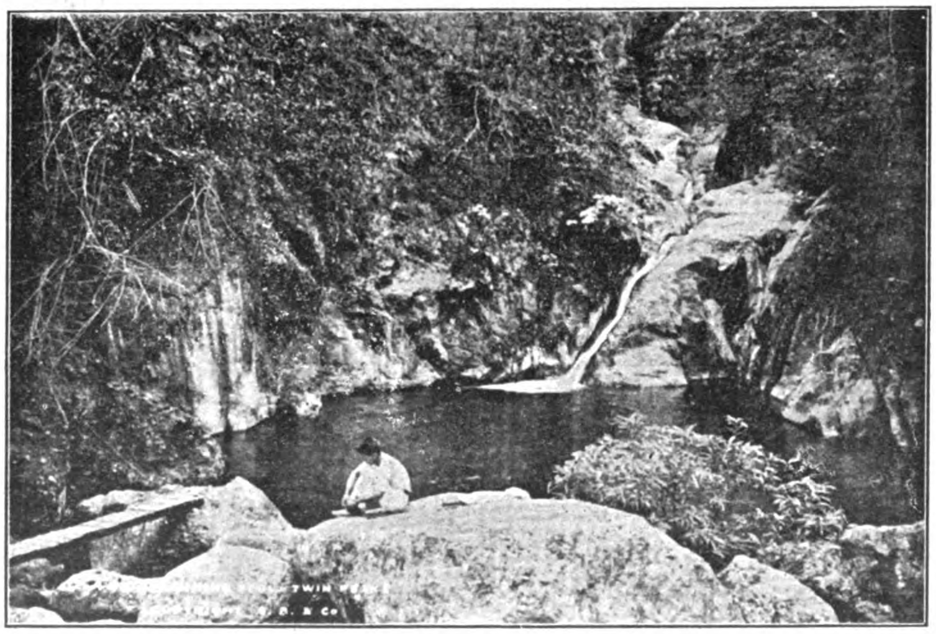

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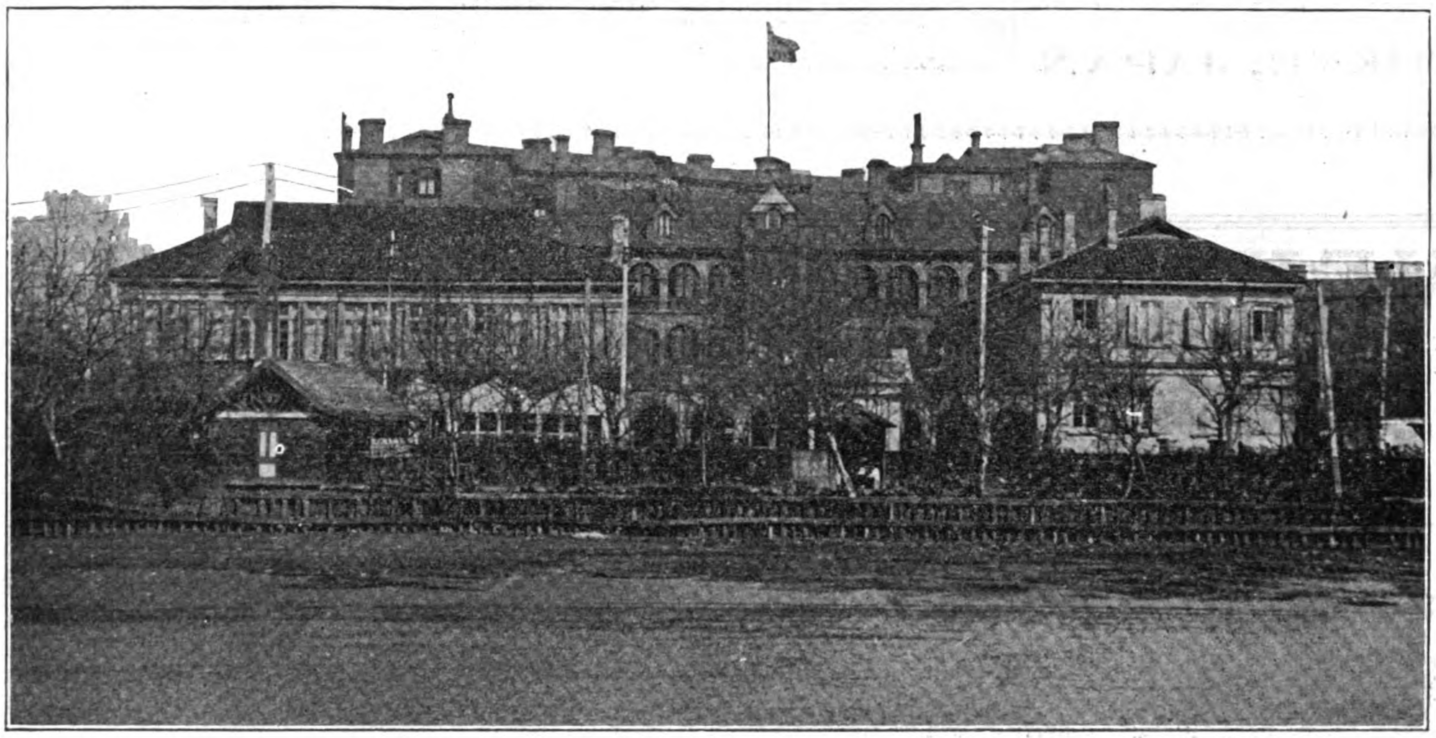

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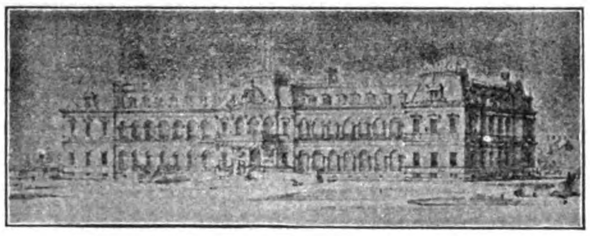

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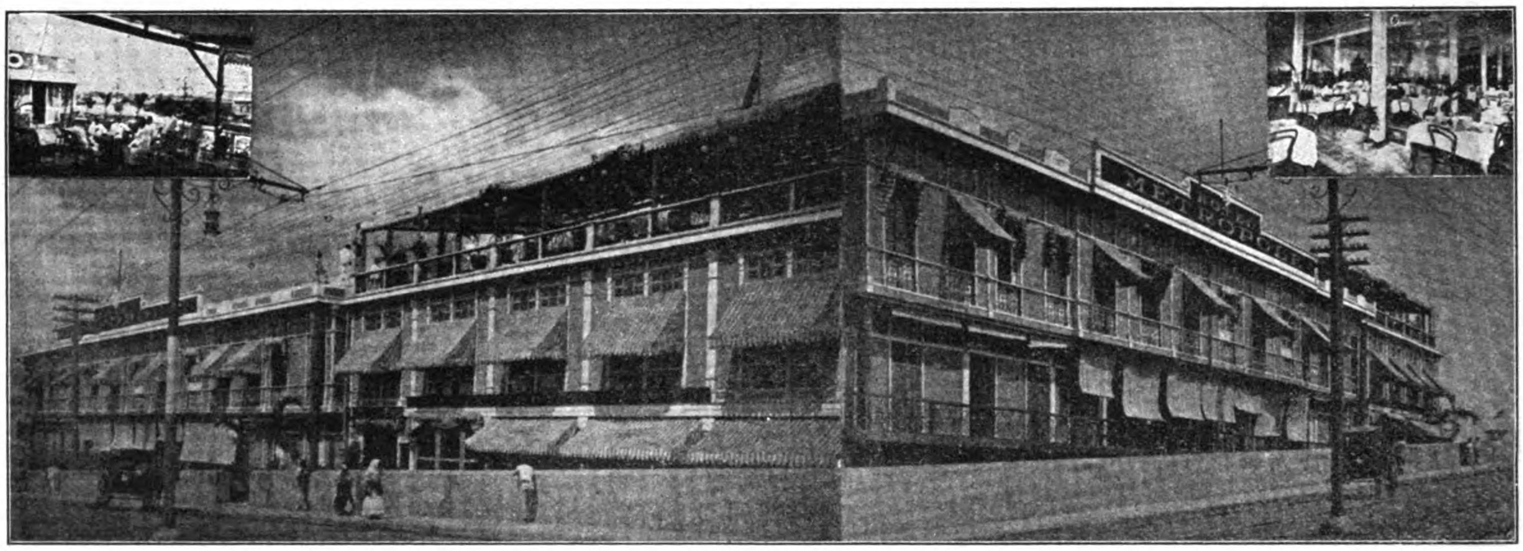

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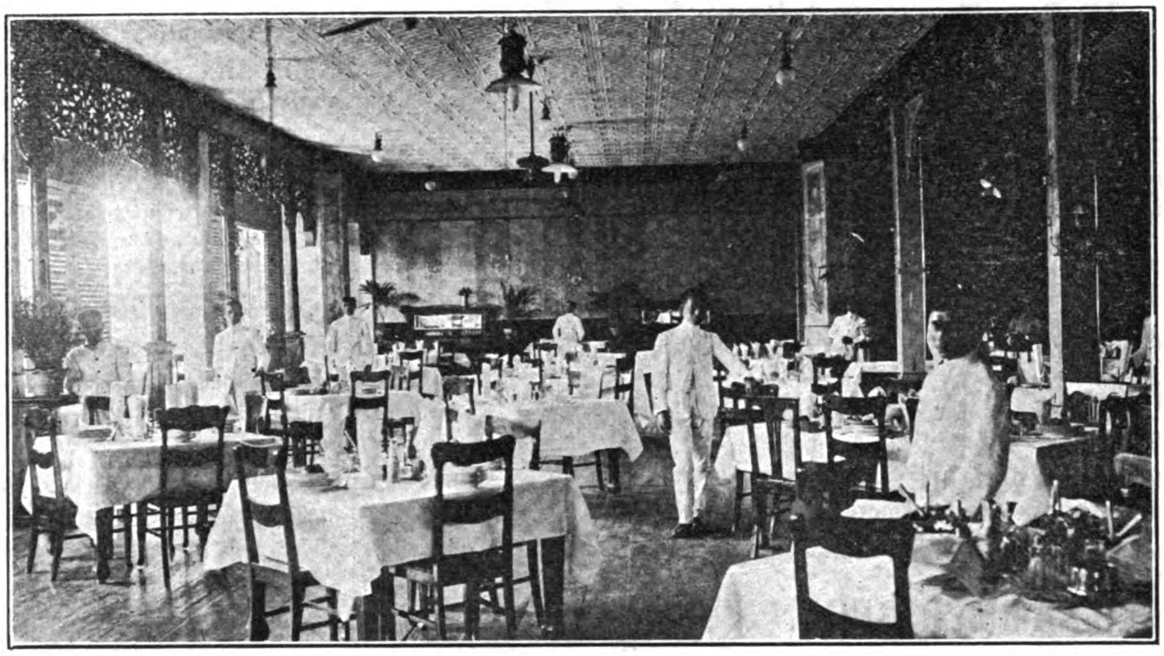

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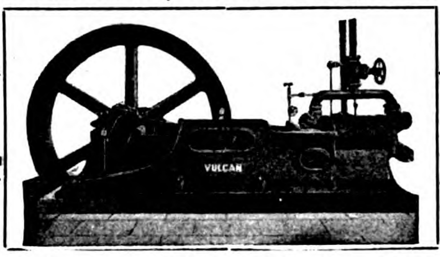

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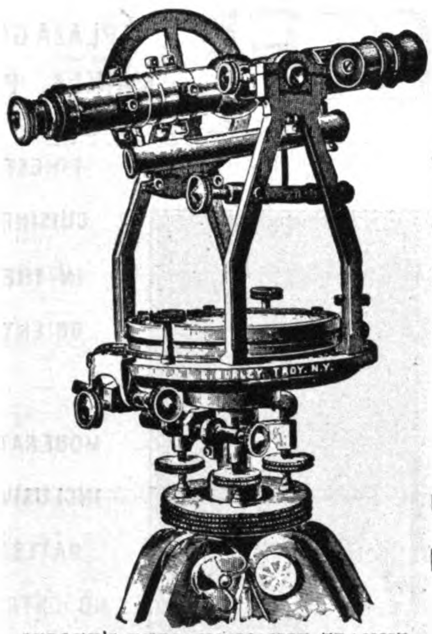

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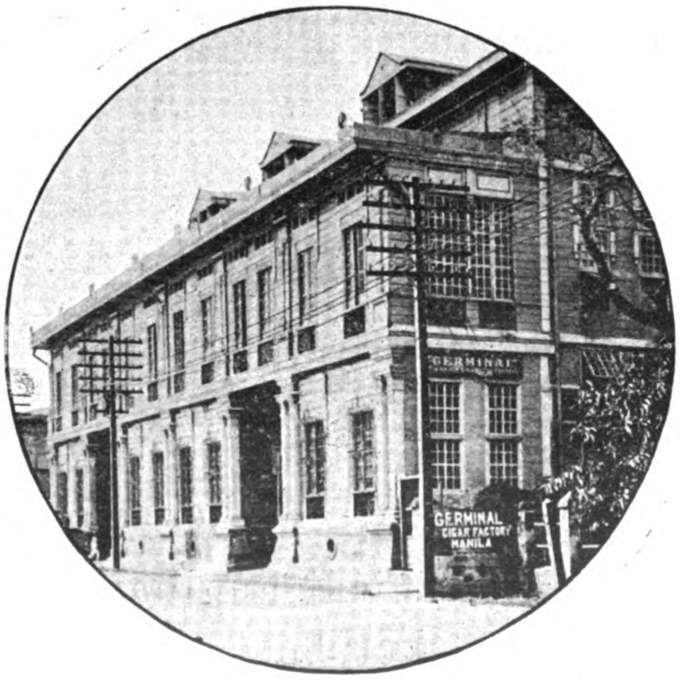

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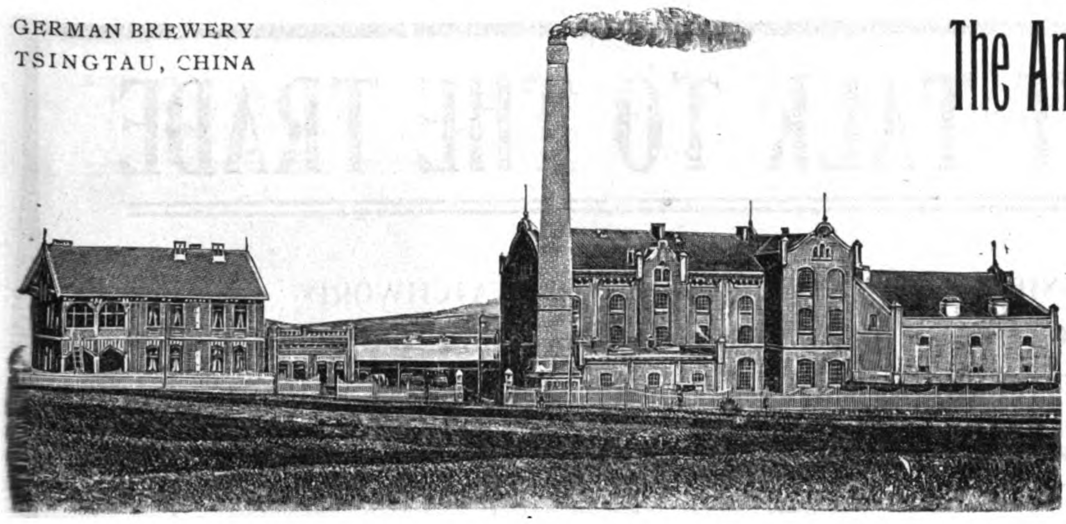

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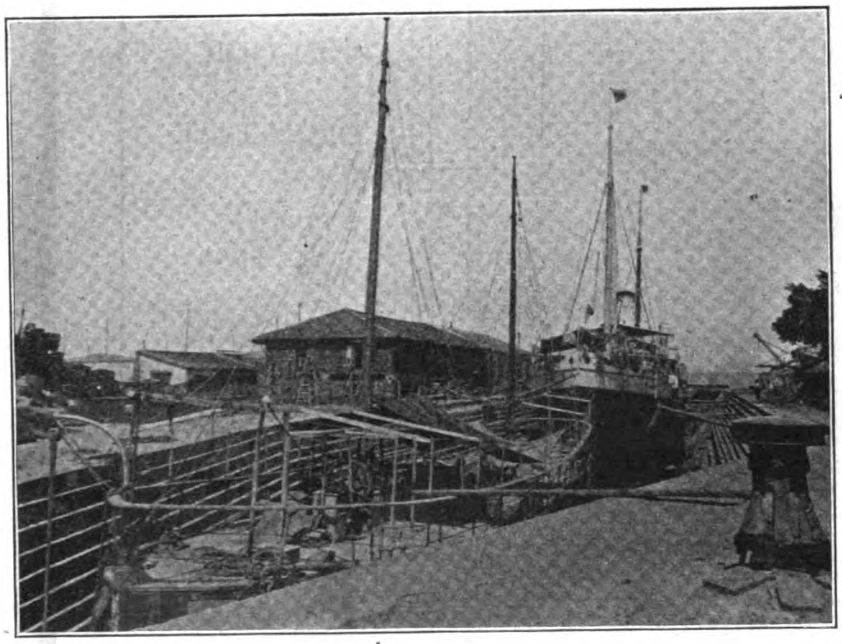

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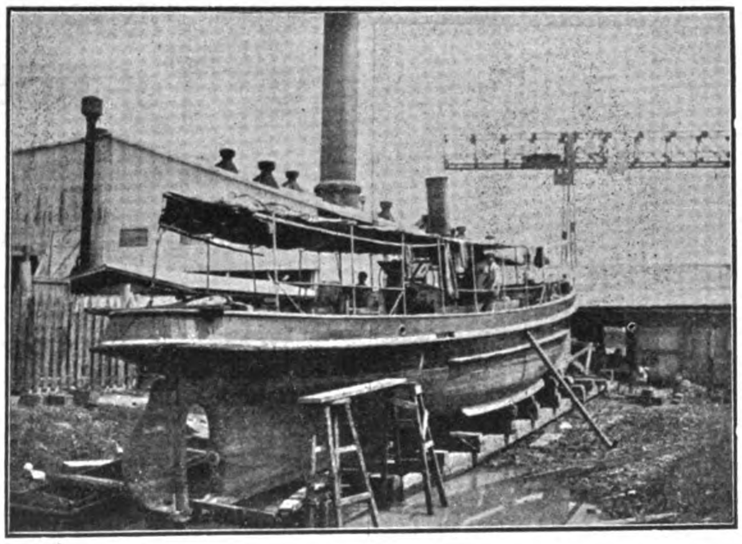

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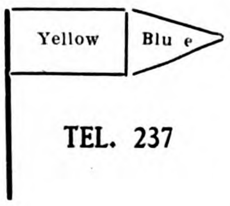

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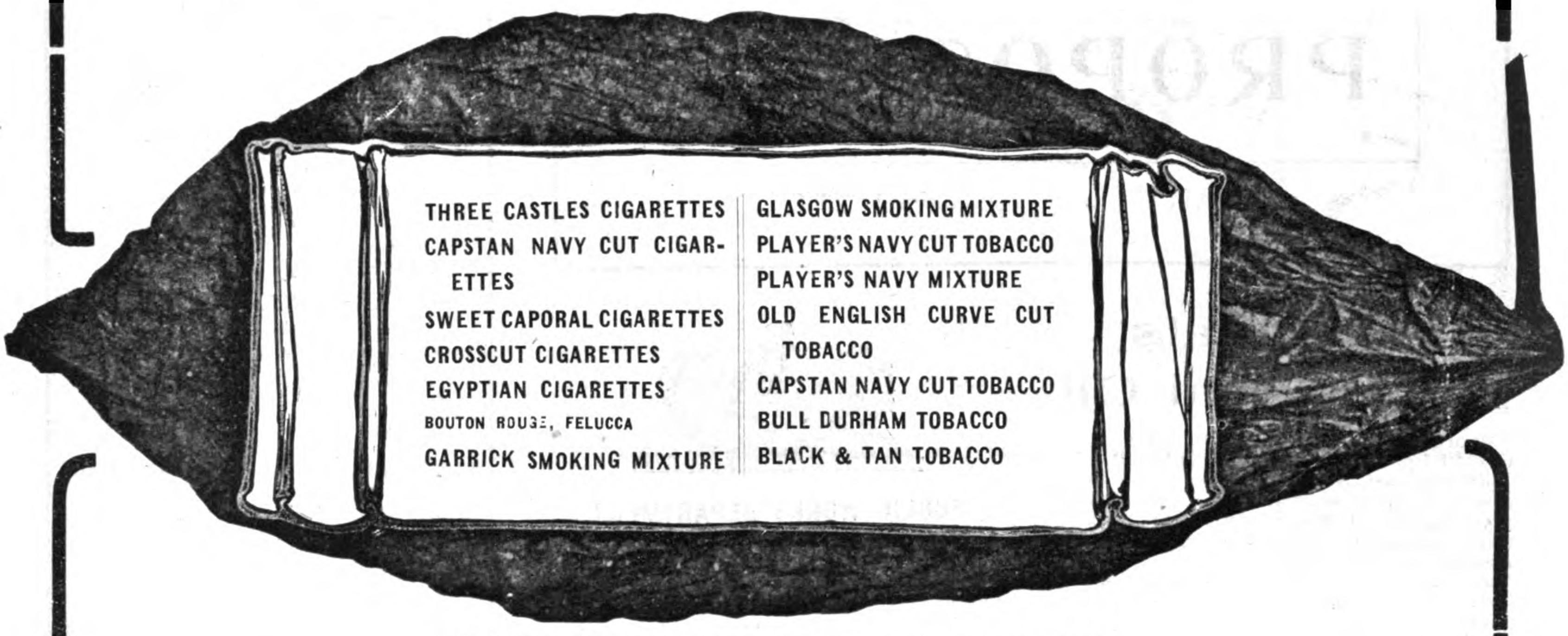

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PROPOSALS

Proposals for Mineral Oil

PROPOSALS FOR MINERAL OIL.—Headquarters Philippines Division, Manila, P. I., April 21st, 1908. Sealed Proposals, in triplicate, subject to the usual conditions, for furnishing 365,000 gallons of Mineral Oil to this Department during the Fiscal Year 1909, will be received at this office until 10:00 a. m., May 21st, 1908, and then opened. Blank forms and information furnished upon application. Envelopes containing proposals should be endorsed, "Proposals for Mineral Oil, to be opened at 10:00 a. m., May 21st, 1908," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

Proposals for Laundry

PROPOSALS FOR LAUNDRY.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., April 20, 1908. Sealed proposals, in triplicate, subject to the usual conditions, for laundering ship's linen, white coats, blankets, and canvas bunk bottoms for U. S. Army Transports at Manila, P. I., during the Fiscal Year 1909, will be received here until 10:00 a. m., May 20, 1908, and then opened. Blank forms and information furnished on application. Envelopes containing proposals should be endorsed "Proposals for Laundry to be opened at 10:00 a. m., May 20, 1908." and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

Proposals for Printing

PROPOSALS FOR PRINTING.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., April 24th, 1908. Sealed proposals in triplicate, subject to the usual conditions, for job and other miscellaneous printing, ruling, and furnishing paper and cardboard for same, necessary at Headquarters Philippines Division and Headquarters Department of Luzon, Manila, P. I., during the Fiscal Year 1909, will be received here until 10:00 A. M., May 23rd, 1908, and then opened. Information and blank forms furnished on application. Envelopes containing proposals should be endorsed "Proposals for Printing, to be opened at 10:00 A. M., May 23rd, 1908," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

PUBLIC WORKS DEPARTMENT

No. 242.—It is hereby notified that tenders will be received at the Colonial Secretary's Office until noon of Saturday, the 30th May, 1908, for the purchase of the following Plant which can be seen at the Government Waterworks Pumping Station, Yaumati, Kowloon:—

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Type: Triple Expansion Worthington duplex engines fitted to double acting pumps.
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Type: Vertical Beeley Field tube. Overall dimensions 9' 8" high by 4' 7" diameter
Working Pressure, 90 lbs. per square inch.

The whole complete with copper steam pipes and brass fittings to be sold as they stand and to be removed by the purchaser.

The plant will be sold either in one lot or in three lots:—

Lot 1.—1 Engine with condenser and pumps and delivery pipes up to and including the non-return valve and the supporting pillar. No suction pipes are included.

Lot 2.—1 Engine with condenser and pumps as above.

Lot 3.—1 Boiler together with down-take pipe to Boiler house floor, all mountings complete. Also a donkey feed pump, feed tanks and steam pipe up to the engine branches but not including them.

For full particulars apply to the Public Works Department.

The Government does not bind itself to accept the highest or any tender.

W. CHATHAM,
Director of Public Works.

1st April, 1908.

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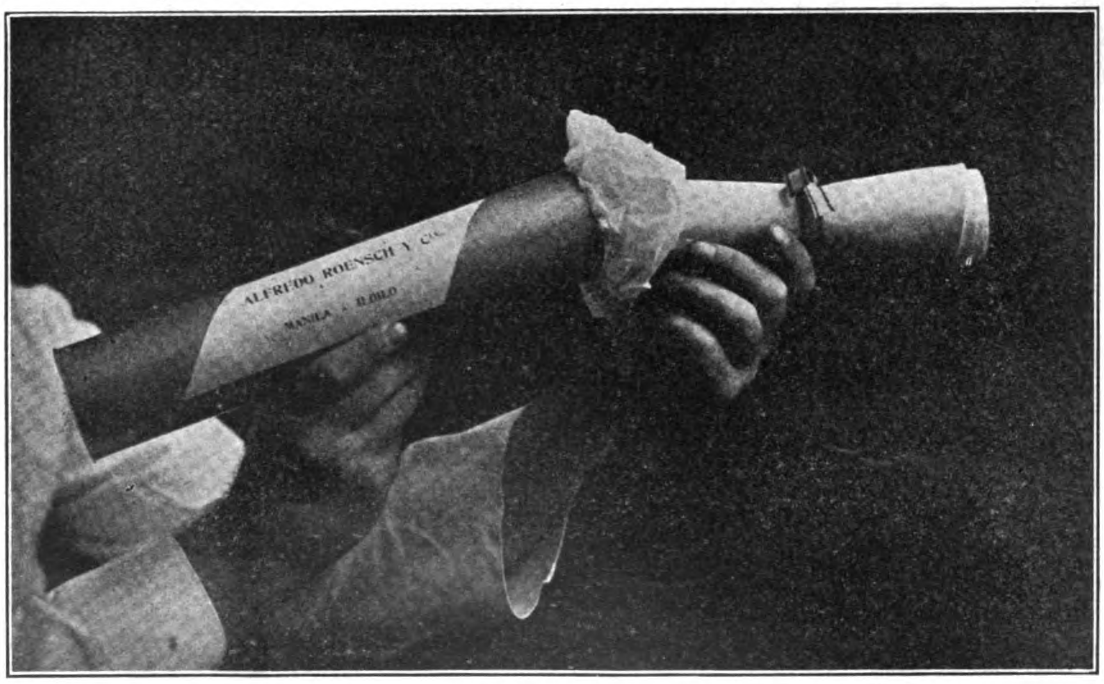

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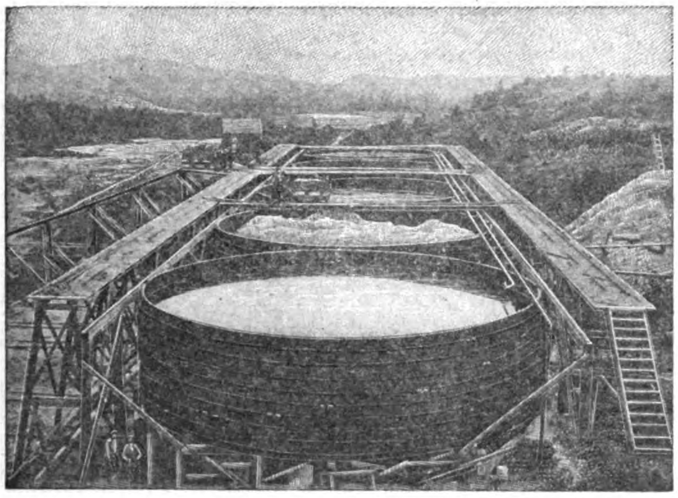

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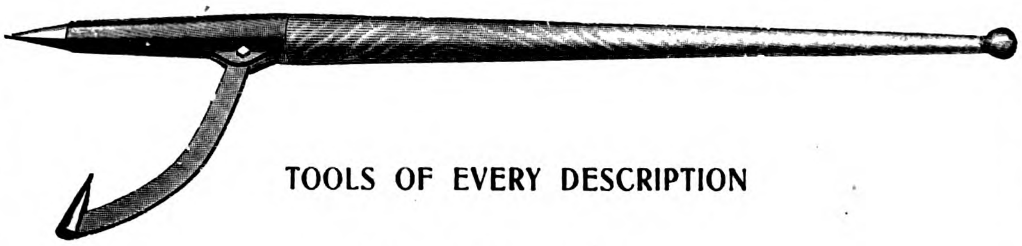

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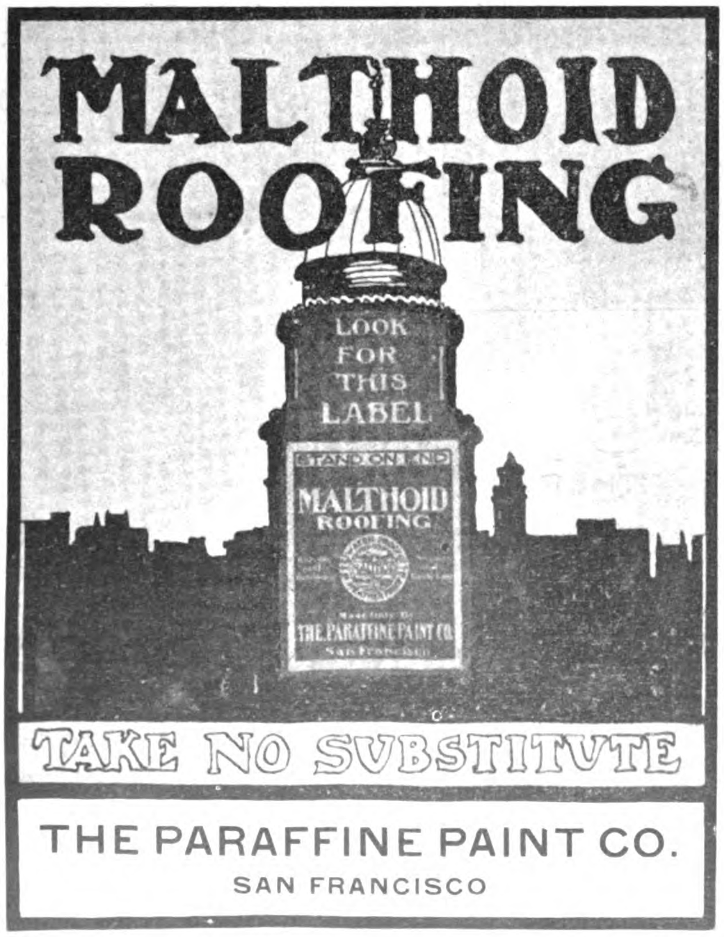

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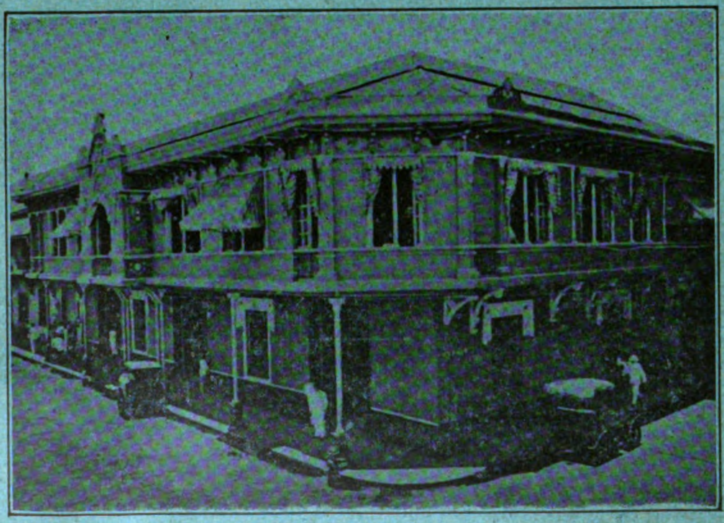

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